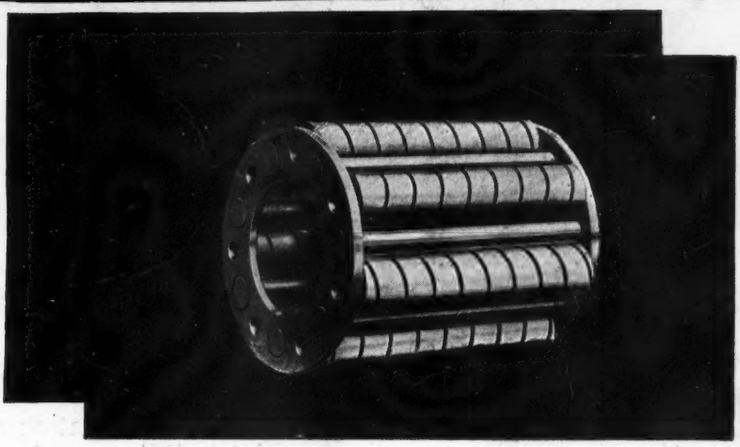


a TRUE ANTI-FRICTION bearing *for your mine cars*

A TRUE anti-friction bearing has but one function—to keep your cars running.

You can bank on sustained high tonnage when the cars do their job—and they will, with Hyatts in the running gear.

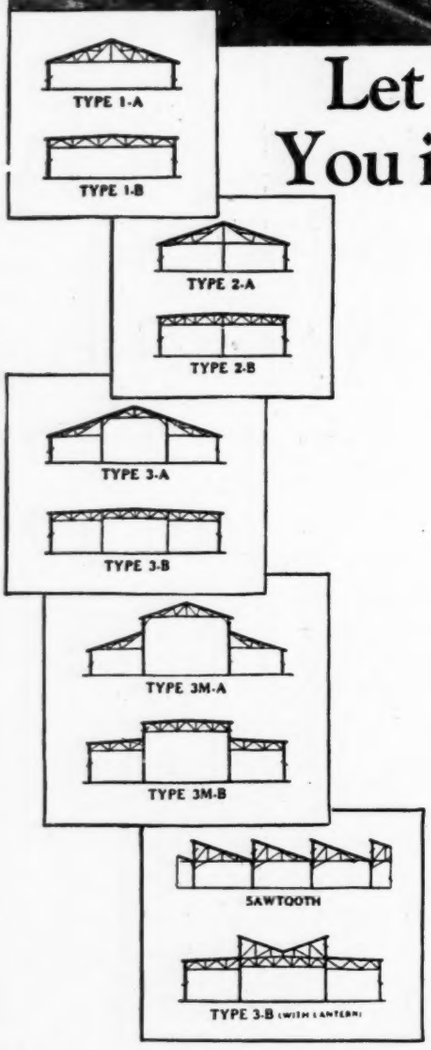
Hyatt bearings are designed to furnish true anti-friction qualities. They turn freely—unimpeded, they cannot wedge nor jam.

They are economical bearings too, for Hyatt equipped trucks are not limited to the original body life. Records show that they outlive body after body.

Lubricant—their only requirement—automatically saturates every part of the bearing, due to the Hyatt hollow, helical rollers. Grit that may work its way into the bearing is carried away from the surface—wear on the bearings and axle is practically negligible.

HYATT ROLLER BEARING COMPANY
Newark Pittsburgh Huntington Chicago

HYATT
ROLLER BEARINGS



Let Truscon Engineers Assist You in Planning Your Buildings

Truscon has a skilled organization experienced in meeting special building needs such as you have in the mining industry. Truscon designs, manufactures, delivers and erects exactly the type of building you need for hoist houses, blacksmith shops, machine shops, crushing plants, etc. And Truscon provides you with durable copper steel incombustible construction. You save time, money and inconvenience. Your engineering staff is freed to carry on constructive mining projects. Full details gladly sent on request.

Use the coupon for classified catalog and information

TRUSCON STEEL COMPANY, Youngstown, Ohio

Warehouses and Offices in all Principal Cities

TRUSCON COPPER STEEL BUILDINGS

Permanent Types of Standardized Construction

Truscon Service *Includes* **Planning-Manufacture-Erection-***One Contract* ***No Extras***

TRUSCON STEEL COMPANY
Youngstown, Ohio

Please send me your classified catalog and information on Truscon Buildings to be used for

..... Type.....

Length .....Width .....Height .....

Name .....

Address .....

C.A. 10-14-26

Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

Volume 30 — New York, October 14, 1926 — *Number* 16

FRANK H. KNEELAND
J. H. EDWARDS
SYDNEY A. HALE
Associate Editors
GEORGE J. YOUNG
Western Editor

COAL AGE

A. F. BROSKY, Pittsburgh
JEROME C. WHITE
LOUIS C. MCCARTHY
FRANK J. G. DUCK
Assistant Editors
PAUL WOOTON
Washington Correspondent

With which is consolidated "The Colliery Engineer" and "Mines and Minerals"
R. DAWSON HALL, *Engineering Editor*

In a Joint Meeting Twelve Companies Discuss Their Local Problems 525
By J. H. EDWARDS.

Laws That Prescribe Ventilation Vary Widely 528
By JOHN A. GARCIA.

Standardization of Mine Timbers Is Needed 531
By A. F. BROSKY.

National Mining Institute Holds Its Annual Field Meeting at Pittsburgh 534

Why Does Some Coke Allow Charge in Blast Furnace to Become Cold? 538
By R. DAWSON HALL.

Standards Await Determination of Furnace Objectives 540

Northern Field Operators Mass Attack on Tidewater Adjustment from South; Western Maryland Ry. Urges Rate Cut 541
By SYDNEY A. HALE.

Britain's Coal Trade Menaced by Franco-German Iron-Steel Accord Is Belief of Washington Officials 543
By PAUL WOOTON.

Baldwin-Churchill Peace Program Rejected by Striking British Miners; Withdrawal of Safety Men Threatened 545

Mississippi Barge Line Now in Operation 543
Schwab Heads A. S. M. E. 543
Illinois Mines Seek Uniform Differential on Fine Coal 544
Heavy Taxing of Hard Coal Unjust, Says Edmonds 544
Mine Wage Cut Fades in Ohio as Trade Picks Up 544
Revival of Southwest Mines Seen Under New Union 544
Kansas Industrial Court to Get Acid Test 545

Editorials 523
News Items from Field and Trade 546
Traffic News 548
Weekly Review and the Market 549
Foreign Market and Export News 554
New Equipment 555

Improvements That Earn Big Returns

Men in the mining industry are not "Scotch" in the sense of the term frequently accepted today, but under present highly competitive conditions it behooves them to be "careful." As a rule, six per cent is considered a fair net return on money, and fifteen per cent a reasonable gross return on funds invested in mining equipment. In most cases any earnings over fifteen per cent are regarded as "clear cream." But next week J. H. Edwards will describe improvements being installed at a certain mine that are calculated to return the owners fifty per cent of their cost or to pay for themselves in two years. No less than six distinct advantages are secured.

Underground Fire Corps Are Necessary

Out in Pittsburgh a few evenings ago a comparatively small group of mining men got together to discuss their problems. A committee brought in its report on the equipment that each mine should have on hand in order to be ready to cope with underground mine fires. This report was duly considered and accepted. The significant thing about it was the fact that it stressed, not the items or equipment so much as the organization that was to handle it. Adequate equipment is necessary, of course, but to secure best results a fire corps must be organized to handle it effectively.

McGRAW-HILL PUBLISHING COMPANY, INC.
Tenth Avenue at 36th Street, NEW YORK, N. Y.

WASHINGTON, Colorado Building
CHICAGO, 7 South Dearborn Street
PHILADELPHIA, 16th and Parkway
CLEVELAND, Guardian Building
ST. LOUIS, Star Building
SAN FRANCISCO, 883 Mission Street
LONDON, 6 Bouverie Street, E. C. 4, London

Cable Address: "Machinist, N. Y."

The annual subscription rate is $3 in the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Porto Rico, Canal Zone, Cuba, Honduras, Nicaragua, Dominican Republic, Salvador, Peru, Colombia, Bolivia, Ecuador, Argentina, Chile, Spain, Panama, Brazil, Uruguay, Costa Rica, Guatemala, Haiti and Paraguay. Extra foreign postage $3 (total $6 or 25 shillings). Single copies, 20 cents.

Change of Address—When change of address is ordered the *new* and the *old* address must be given. Notice must be received at least ten days before the change takes place.

JAMES H. MCGRAW, President
JAMES H. MCGRAW, JR., V.-P. and Treas.
MALCOLM MUIR, Vice-President
EDWARD J. MEHREN, Vice-President
MASON BRITTON, Vice-President
EDGAR KOBAK, Vice-President
C. H. THOMPSON, Secretary

Publishers of
Coal Age — Engineering and Mining Journal
Engineering News-Record — American Machinist
Power — Chemical and Metallurgical Engineering
Ingeniería Internacional — Radio Retailing
Bus Transportation — Electric Railway Journal
Electrical World — Electrical Merchandising
Industrial Engineer — Successful Methods
Journal of Electricity
(Published in San Francisco)
American Machinist—European Edition
(Published in London)

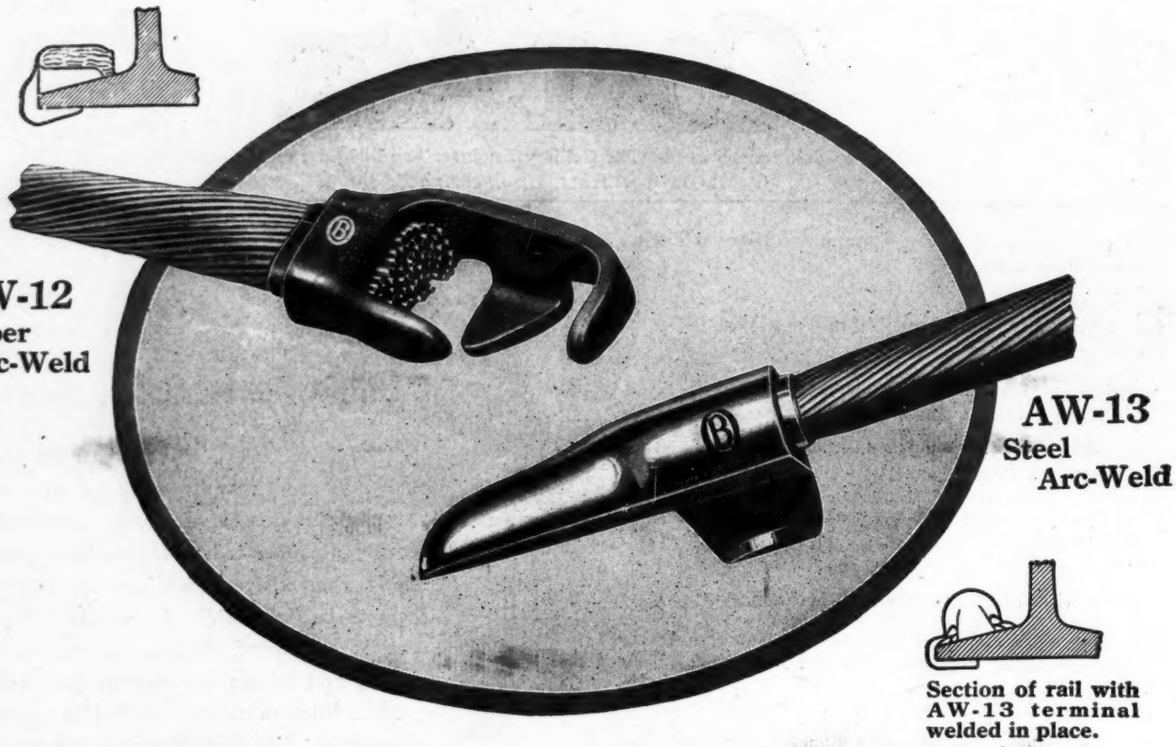
Copyright, 1926
By McGraw-Hill Publishing Company, Inc.

Published weekly
Entered as second-class matter Oct. 14, 1911, at the Post Office at New York, N. Y., under the Act of March 3, 1879.
Printed in U. S. A.
Member Audit Bureau of Circulations
Member Associated Business Papers, Inc.

Number of copies printed this issue, 10,176

Advertising Index—Alphabetical, 50; Classified, 47; Consulting Engineers, 45; Searchlight Section, 42-44

Section of rail with AW-12 terminal welded in place.



Section of rail with AW-13 terminal welded in place.

Hook Terminal Bonds Save Time

IF you want to avoid bond clamps or makeshift means for holding rail bonds preparatory to welding—try O-B hook terminal bonds.

The terminals are located in place by the tap of a hammer. The hooks grip the edge of the rail base.

Here you have ready means for holding the terminals in place while welding. You need no clamps. All one piece. Quick, easy, accessible welding.

Let us supply you with the complete details.

Ohio Brass Company, Mansfield, Ohio
Dominion Insulator & Mfg. Co., Limited
Niagara Falls, Canada
216M

O-B IS BOUGHT WHEN SERVICE IS SOUGHT

Ohio Brass Co.

PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

COAL AGE

McGRAW-HILL
PUBLISHING COMPANY, INC.
JAMES H. McGRAW, *President*
E. J. MEHREN, *Vice-President*

Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

Volume 30 NEW YORK, OCTOBER 14, 1926 Number 16

Local Institutes Have Big Possibilities

EVERYBODY can't belong to the big national engineering societies. Even if he could the topics discussed at their meetings and treated in their transactions might have small bearing indeed upon his daily work and shed practically no light whatever upon the problems with which he is daily, perhaps almost hourly, confronted. Thus, except as an item of general information the mine electrician is not intimately interested in the production of artificial lightning or the design of giant generators. He is vitally interested, however, in the maintenance and upkeep of mining machine and locomotive motors, or in how he can handle his department so as to cause the least interference with the normal activities of the operating force.

Perceiving that mining officials, particularly if they live in regions or communities that are more or less isolated, can learn much from an interchange of ideas, a group of such men in southeastern Kentucky and northeastern Tennessee some years ago organized a little mining institute of their own. At the meetings of this body some extremely pertinent subjects are discussed, the ideas brought out being of much every-day benefit to those present. The membership of this organization has grown both in numbers and in "scope." In its first inception it was composed chiefly of electrical men; in the last meeting sales representatives and operating officials took an active part.

We must have our great national engineering societies—they are potent influences toward advancement in science and industry. But for the man who is down near the foot of the ladder such local organizations as this one in the Kentucky mountains fill a long felt want. When men in similar capacities but employed in different mines meet and discuss their common problems nothing but good can result. When such discussions include talks or papers from men in the sales as well as the operating, electrical and mechanical departments the possibilities involved are multiplied.

The Case Against the "Blower"

AS A MEANS for forcing large quantities of fresh air from the last crosscut to the face of advance workings the "blower" is doubtless superior to the line brattice. For this very reason—its efficiency—it would seem that this device should be chosen from the standpoint of safety as well. As a matter of fact, however, many mining men look upon it with disfavor, some even going so far as to assert that its employment is little short of criminal.

Two chief reasons are doubtless responsible for this antipathy. The first of these is the fact that it has been and is still being used carelessly in many mines. The second lies in the circumstance that heretofore no permissible motor was available for driving this machine and consequently its power element constituted an ever-present explosion hazard.

When improperly installed in a gaseous mine there is small question but that the blower may be as dangerous in ventilation as black powder is in shooting. The mere fact that a machine of this kind was considered the possible or even probable cause of the recent Clymer explosion should constitute a warning to those who now use or anticipate installing this type of equipment. It should also point the need for equipping future machines of this variety with motors and switches that are totally inclosed and safe for use in gaseous and dusty atmospheres.

Where Is the End?

FIFTY YEARS AGO at the Centennial Exposition there was exhibited a steam engine which at that time was considered to be about the ultimate in so far as size was concerned that it was possible to build for stationary work. That same exposition, however, witnessed practically the dawn of what might logically be called the electrical era.

Just half a century has now passed and the steam-driven prime movers as well as the electric generators that they drove have steadily grown larger and ever larger. Not only this but, thanks to electricity, the distance over which power is transmitted has grown longer and ever longer, while the voltages employed have mounted higher and higher as the years have passed.

At the World's Columbian Exposition held in Chicago, in 1893, a new form of steam engine was shown to the world. This was the steam turbine. Compared with the machines of the same general type as built today, the one then exhibited was crude and extravagant in its use of steam while in size it was a mere pigmy. Its diminutive proportions were what probably impressed the observer most. It really seemed incredible that a rotor only 6 in. in diameter but spinning at several thousand revolutions per minute could develop 20 hp. Its high speed seemed to be its greatest shortcoming.

It was found, however, that although this high rotational speed ill fitted this new type of prime mover for the transmission of mechanical power, it admirably adapted it for driving electrical generators. Since 1893 the turbine and the alternator have literally evolved in synchronism, improvements in the design of one being made in order to keep pace with improvements in the design of the other.

From a pigmy the steam turbine has grown to a veritable giant. Out on the shore of Lake Michigan the State Line Generating Co. will soon install a 208,000-kw. cross-compound turbo-generator. The Southern California Edison Co. will shortly install two 105,000-kw. tandem-compound turbo-generators and the Edison Electric Illuminating Co. of Boston will soon install a

63,000-kw. single-cylinder turbo-unit. These will be the largest machines of their respective types ever built.

One may well question "Where is the end? When and at what limit will the ultimate be reached?" Neither of these questions can, as yet, be given a satisfactory answer. In the past improvements in design and in the quality and strength of material available have made such strides as to render the mighty machines of today possible. How much further the process will go can only be conjectured.

One thing, however, is certain. It is America's utilization of her vast natural resources, particularly coal, that has been chiefly responsible for her transition from an agricultural to an industrial nation. Simultaneously the widespread utilization of power, including electricity, has eliminated much of the drudgery that was considered the unavoidable bane of human existence by our forefathers. Let us hope that the process continues and that the end, so far as making the forces of nature ease the labor of man is concerned, is not near at hand.

Save the Prints

SUPERINTENDENTS and managers realize full well the necessity for carefully guarding mine map tracings against loss. It would be a trying situation if a new superintendent found no mine maps to aid him in becoming acquainted with the layout and extent of the underground workings.

It is likewise ridiculous for a new chief electrician or an electrical engineer of a large mine or group of mines to find no records of equipment, installation plans, part lists, or wiring diagrams, when assuming charge. But this is often the actual condition. The result is that the new chief must spend much of his time for the first few months in compiling records, collecting part catalogues, ordering prints of wiring diagrams from manufacturers, and studying and testing certain complicated wiring installations of which no diagrams were made.

As viewed by many mine officials these preparations for supervision over the electrical and mechanical equipment seem unnecessary. Usually these officials are the very ones who justly complain of high maintenance costs and of numerous delays because of breakdowns. They are satisfied only with the type of electrician who immediately jumps into a repair job without stopping to consult a wiring diagram. They want action, and get it, but often at an unnecessarily high cost and with long delays to production. The electrician can work by the cut-and-try method and make serious mistakes, yet in many cases satisfy the superintendent by "pulling the wool over his eyes" with some "electrical" alibi.

The ever increasing amount of automatic apparatus in use and the many variations in details of the equipments made by the various manufacturers render it almost out of the question for a chief electrician to remember the details of all. Records, blueprints and the like are highly necessary items of his working equipment.

Unfortunately in some cases the management actually discourages the maintenance of records by the chief electrician. This is a short-sighted policy which usually spells costly maintenance and inefficient operation. It also leads to particular difficulties for a new man coming on the job. To a great extent a chief electrician should be judged by his ability to readily exhibit records and prints pertaining to equipment installed and by the effort he makes to preserve for future use of the company all of these prints and other data.

Coal Legislation Demands

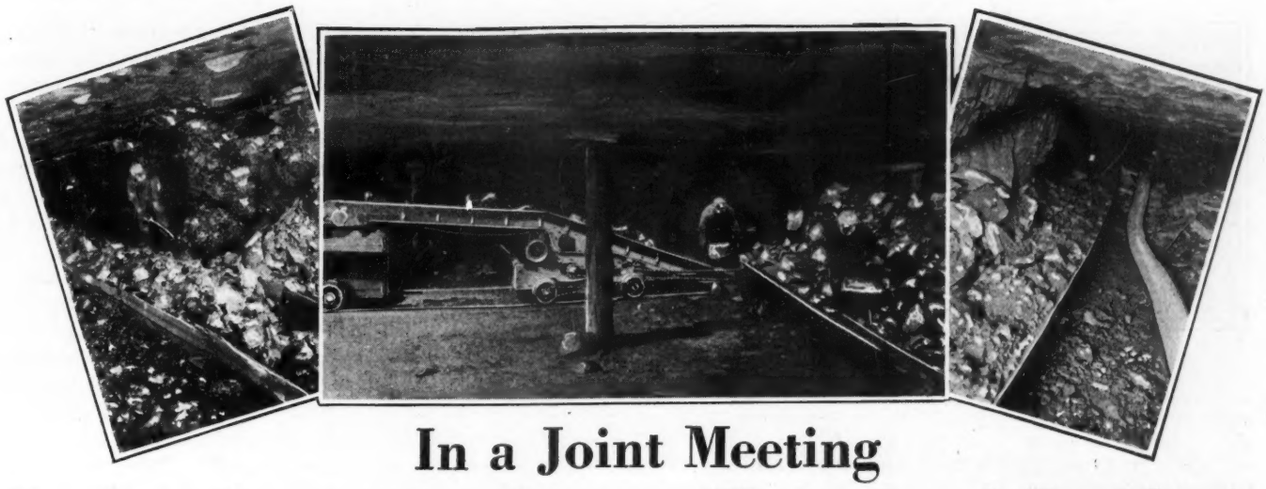
CONGRESSIONAL ACTION on coal is still a live issue. Those who imagined that demands for regulatory legislation died with the last session on Capitol Hill are doomed to discover they have been holding obsequies over a very lively corpse. There are powerful groups, in Congress and out, who believe that coal legislation is good politics. There are many untouched by political considerations who sincerely believe that the functions of national government should be made increasingly paternalistic.

Demand for federal action finds a place in both the Republican and Democratic state platforms adopted by those parties at their recent conventions in New York. The Republican plank is a mildly worded plea for emergency protection. The Democratic plank breathes denunciation of the failure of Congress and the controlling party to enact legislation at the last session and pledges the New York Democratic delegation at Washington to continue its fight for more regulatory statutes.

The industry is privileged to derive what comfort it can from the common report that the Syracuse convention which adopted this platform was dominated by Governor Smith, who not so long ago was chairman of the board of a local corporation which is a subsidiary of a holding company having large coal interests. The industry, too, may, if it chooses, dismiss both planks as empty political gestures. Probably such judgment would not be far astray. But the astute gentlemen who drafted these planks are out to get all the votes they can and their handiwork is confession of their belief in the popularity of an attack upon the coal industry.

The fact that such demands for the most part originate in the larger—and politically important—coal-consuming states has a significance which should not be lost upon coal producers and distributors. In the Northwest and in the Northeast, the two sections which cradle most of the hostile propaganda, there are no common bonds of commercial interest to make business generally the ally of the coal industry when the latter is under unjust attack. In those states and sections of states in which coal production is the major industry, business generally has learned by sad experience that whatever affects coal adversely takes money out of the tills of commerce as a whole.

The appeal to immediate self-interest in non-producing states, therefore, is weak. The best that can be hoped for is to convince the consumer there that his fuel requirements will not be as well served under restrictive legislation as under the prevailing free competitive conditions. There is, however, a broader and more effective appeal to enlightened self-interest and this can and should be made. Every augmentation of the field of government regulation invites a further extension. The twilight zone between business clearly subject to control and industries whose position is debatable is widened and the lengthening shadows stretch out over activities never before thought the proper wards of bureaucratic guardianship. If coal becomes devoted to public use today by legislative fiat, who shall say what business may not be similarly impaled tomorrow?



In a Joint Meeting Twelve Companies Discuss Their Local Problems

Meet in Convention with Sales Representatives and Thresh Out Mutual Difficulties — Attendance Small but Discussion Animated — Careful Bit Sharpening Relieves Much of the Troubles Encountered on Undercutters

By J. H. Edwards
Associate Editor, *Coal Age*, Huntington, W. Va.

AT WILLIAMSBURG, in Whitley County, Ky., on Sept. 23 and 24, a mining convention was held which embodied several unusual features. It was announced as the "Fourth Annual Convention of Mining and Electrical Department Officials" from a group of twelve companies located in southeastern Kentucky and northeastern Tennessee, but the presence of several officials of the sales company, the Southern Coal & Coke Co., and the presentation of two papers on preparation and selling problems, gave this meeting a somewhat broader significance than its name would imply.

The convention, with a registered attendance of fifty-nine, was an outgrowth of a meeting held four years ago at which F. A. Signer, electrical engineer of the Southern Mining Co., and several associated firms, called together the chief electricians and invited the mine officials to attend. As at former meetings, Mr. Signer acted as chairman during the recent convention. T. B. Mahan, president of several of the companies represented, made the opening address and in it stated that be believes competition among coal producers is more critical today than it ever has been before.

Some of the Delegates to the Convention

Although this was a convention of mining and electrical department officials some of the sales representatives of the various companies, as well as some machinery manufacturers, also attended the meeting.

Five subjects were considered at the first morning session. All but one of these were treated in the form of discussions. The exception was a paper read by A. R. Anderson of the Jeffrey Mfg. Co., of Columbus, Ohio. In dealing with the subject of "Underground Conveyors," Mr. Anderson described applications of portable conveyors, sectional conveyors, face conveyors, and conveyor loaders, illustrating each by recent photographs of going installations.

He stated that the actual foot-pounds of energy expended by a man in moving coal onto a face conveyor is roughly one-sixth of that exerted when loading coal into a car. The energy required to drive a conveyor of the scraper or drag type is approximately 100 wt.-hr. per ton for each 100 ft. of conveyor length.

In reply to several questions as to how the mining machine can be moved from place to place without tracks at the face, Mr. Anderson explained that the investment in conveyors usually makes it necessary to obtain a production so large that it necessitates keeping a mining machine at the face continuously, thus eliminating the moving problem.

Subject No. 2 of the morning session was a discussion of "How Can the Electrical Department be of Greater Assistance to the Mining Department?" At this time several superintendents aired their ideas of what more could be expected from the mine electricians. These suggestions, summed up were: More willingness to co-operate, and more inspection and attention to equipment before and after working time.

On the left in the headpiece is shown a sectional conveyor extending along a coal face in a mine in Kentucky. In the center illustration a sectional conveyor is shown discharging into a car loader, and on the right may be seen a sectional conveyor leading to the loading point. The place here worked is ventilated by the canvas tube at the right of this picture.

One Sectional Conveyor Discharging to Another

This picture like most of the others contained in this article was taken in a mine in Kentucky. A small blower discharging into a flexible canvas tube may be seen in the background.

Next the mine electricians had their inning. The subject was reversed, "How can the Mining Department Assist the Electrical Department in Reducing Costs?" The principal suggestions brought forward were that the tracks should be kept clean and more competent mining machine operators should be employed. G. L. Birch, chief electrician of the Southern Mining Co., of Balkan, Ky., stated that records at the mine prove that it costs $1,200 to $1,600 to train a machine runner.

A. M. Ellison, manager of the Mahan-Ellison Coal Corp., called attention to the fact that a mining machine operator must be mechanically inclined. Bryan Harkness, chief electrician of the Southern Mining Co. of Insull, Ky., somewhat strengthened this view by stating that only the younger men learn readily to become good mining machine operators.

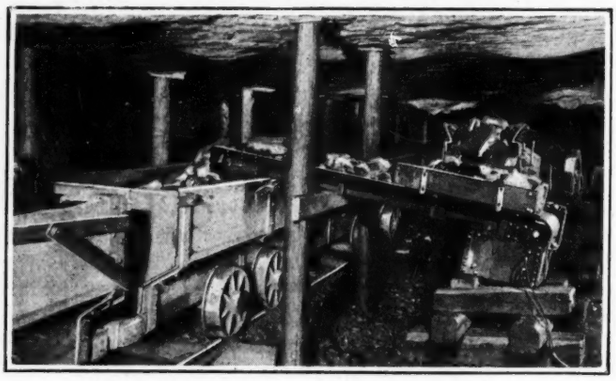
During the next discussion, "Schemes for Cost Reductions," the case at the Gatliff Coal Co. was cited, where the system of posting each month the cost of repairs opposite the machine or locomotive operator's name has reduced the total repair cost 25 per cent. At this mine the labor and material repair cost of operating twelve locomotives and sixteen mining machines averages approximately $1,200 per month.

Average lubrication costs per month at the mines of two of the companies represented were 0.37c. and 0.4c. per ton, respectively. One company reported having abandoned the use of high-grade lubricant in favor of cheap black oil for use on mining machine chains. The discussion indicated that this one case of favoring black oil arose from an admitted inability to prevent the cutter operative from wasting the high-grade lubricant.

W. J. Henry, of the Sullivan Machinery Co., Knoxville, Tenn., stated that black oil is useless as a cutter chain lubricant, because it does not penetrate the joints where it is needed. He said that oil poured on a cold cutter chain, while the machine is sumping up, accomplishes no lubrication. The proper time to oil such a chain is just after completing a cut when it is warm and a proper lubricant will penetrate the joints.

An interesting detail brought out by the discussion was the loud demand of the chief electricians for the manufacturers to build better trucks and truck-wheel bearings on portable mine compressors. As a conclusion of the morning session W. J. Henry described the Sullivan low-model coal cutter and the shearing machine.

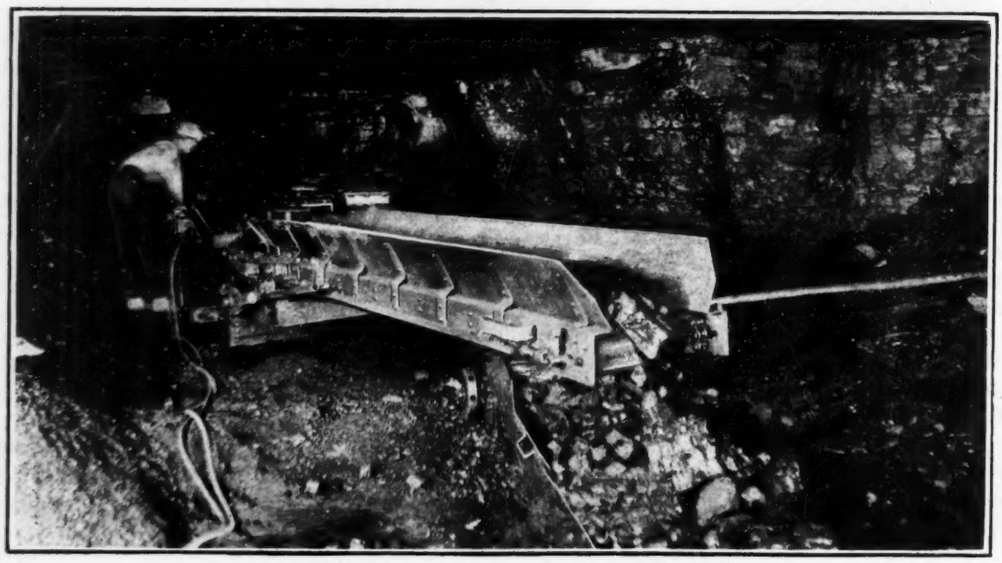
An innovation for such a convention was the devotion of the entire afternoon to golf. Those who were not fortunate enough to be equipped to play formed the gallery. A number of men from the mines were given their first opportunity to see the game at close range. Wild shooting on the part of several amateurs amused the crowd and made the course none too safe.



Transfer Conveyor Loading Mine Cars

Coal from the face is discharged into the short transverse conveyor which delivers it to the waiting trip of mine cars.

In the evening an excellent banquet was served to about seventy guests. Judge Lindsey of Knoxville acted as toastmaster and N. B. Perkins, president and general manager of several of the companies represented, reviewed briefly his recent trip through the mining sections of Europe. He said that an entire absence of demonstrations in the Welsh mining districts



Transfer Point

This shows a short-wall loader delivering to a sectional conveyor Many conveyors as now built lend themselves admirably to the transportation of coal which is placed upon them either by hand or by other machines. The coal thus transported is delivered to cars at some central loading point on the heading or haulageway.

Car Loader at Work

This machine is here shown on the jumper rails at the face. The coal is being loaded upon it by hand. Note the cat head on the side of the machine which facilitates spotting cars to be loaded. It is thus not necessary to have a locomotive in constant attendance on a machine of this kind, yet cars need not be moved by hand.

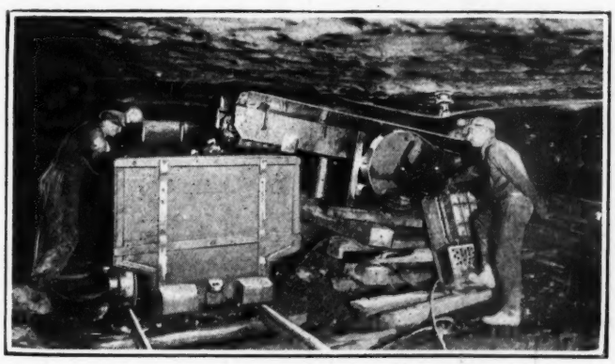
made it hard to realize that a strike was in effect there.

Among the other speakers were, E. C. Mahan, president of the Southern Coal & Coke Co., Knoxville, J. C. Callahan, manager of the same company, but residing in Cincinnati, R. E. Howe, secretary of the Southern Appalachian Coal Operators Association, Knoxville, E. R. Clayton, secretary of the Harlan operators association, and J. E. Morrow, of Wellston, Ohio. Mr. Morrow claims sixty-one years of activity in coal mining.

A session on Friday morning completed the convention. E. L. Hough, of the General Electric Co., described and exhibited a new sectionalizing breaker for use inside the mines. A feature of this reclosing breaker is the change-over relay which adapts it to tie feeder or loop service, the feed coming from either way.

E. W. Brown, division engineer of the Kentucky Utilities Co., Pineville, Ky., told of a new development that will help to minimize interruptions of power to the mines. Automatic reclosing breakers are being installed in the secondary alternating-current lines at the customer's transformer banks. These overload breakers are expected to take care of all trouble on the secondary side. The primary fuses, accordingly, are made of much higher capacity, so that they will blow only in case of an internal short circuit in the transformer.

A paper which seemed of much interest to the operating men was that on the preparation of coal by E. C. Mahan. He gave his listeners a chance to view the preparation problem from the other side of the fence He urged consistency in preparation, saying that one poorly prepared car may mean the loss of a customer. Not only does this mean that just that much future business is lost, but in case of a new customer there is a loss of about $200 expended in getting his first order.



Sectional Conveyor Loading Mine Cars

It is the practical trial of such machines as this that is demonstrating the feasibility of mechanizing American coal mines. Such machines may consume an appreciable amount of power but this is far cheaper than the energy generated by human muscles.

Next, J. C. Callahan talked on the "Customer's View Point of Our Coal." He pointed out to the operating men the expense of handling complaints when customers are scattered through eighteen states.

In response, N. B. Perkins pointed out to the sales department the expense that may be necessary in order to secure better preparation. For instance, at one mine in which the bottom is soft, a new system has cut the ash content from 8 to 4 per cent but has increased the production cost by 15c. per ton. The change of system consists of leaving the bottom coal below the undercut to be loaded after the second cut ahead has been made.

In further discussion of preparation, L. S. Safriet, general superintendent of the Gatliff Coal Co., Gatliff, Ky., stated that the secret of the great improvement made at his company's mine in cleaning coal lay in the hiring of an inspector to view each car of coal as it passes over the feeder below the dump.

F. E. Gilbert, general superintendent of the Southern Mining Co., reviewed his experiences in attempts to secure more lump by improved blasting methods. Explosives of various speeds were used but the results prompted no change from the grade FFF powder originally used.

In a discussion of "Results of Good Track," Mr. Safriet told of a mine at Gatliff in which the laying of heavier steel resulted in raising the production from 400 to 600 tons daily. This is a 50-per cent increase.

The convention was closed by a general discussion and review. In this, the economy of properly shaped and hardened bits for mining machines was brought to the attention of the superintendents and chief electricians. One mine reported that feed chains are seldom broken since the practice was started of carefully sharpening and tempering the bits used in the mining machines. Careful sharpening takes little more time than indifferent work yet yields much better results.

Laws That Prescribe Ventilation Vary Widely*

Standard and Uniform Regulations Hardly Practical — Heretofore No Attempt Made at Codification— Language of Statutes Often Confusing and Contradictory — Unequal Regulations May Cause Hardship

By John A. Garcia
Consulting Mining Engineer, Chicago, Ill.

A STANDARD SET of coal-mining laws for the entire United States is hardly practicable, yet the numerous variations in the state laws for almost every item, as illustrated in the tables herewith for ventilation alone seen almost entirely unnecessary. The same useless variations appear in almost every comparable section with no apparent reason except, of course, that no attempt has ever been made to codify them, and having been developed over a long period of time by innumerable individuals and legislatures the present situation is the logical outcome of lack of co-operation between states.

*Paper entitled "State Coal-Mining Laws Concerning Ventilation," presented before the meeting of the American Institute of Mining and Metallurgical Engineers held in Pittsburgh, Pa., Oct. 5 to 9, 1926.

The ventilation of a mine is affected indirectly by many provisions not listed specifically under this heading and it would be necessary to tabulate the major portion of all the laws to secure a complete comparable digest, so that only a few of the more important have been set down here. This point is well illustrated in the section providing for clearance between car and rib, which is intended as a safety measure on account of personal injury, but is highly important from the standpoint of ventilation because of choked airways in mines operated on the two-entry system.

Misinterpretation and confusion may be expected from the phraseology alone; one state provides that the scale of the mine map shall be "not more than 100 ft. to 1 in.," while in another state "not less than 100 ft.

Table I—Digest of Laws Concerning Coal-Mine Ventilation in the United States

	Type of Fan and Use of Closed Lights			Scale of Mine Maps and Data That Must Be Shown			
	Minimum Amount of Air Required per Man, per Min., Cu.Ft.	Must Fans Be Reversible?	Must Safety Lamps Be Used Exclusively?	Scale, Ft. per In.	Must Direction of Air-Current Be Shown byArrows?	Location Required of Doors, Overcasts, Etc.?	Location Required of Oil and Gas Wells?
Bureau of Mines Operating Regulations...	100	Yes	Yes, in gaseous mines or gaseous sections of a mine.	Not more than 200 ft. to 1 in.	Yes	Yes; also firewalls, dams, squeezes, etc.	Yes
Alabama	100	No	Not mandatory.	100 ft. to 1 in. or 200 ft. to 1 in.	Yes	No	Yes
Arkansas	200	Yes	Not mandatory.	Not specified.	Yes	Yes	No
Colorado	100	Yes	At judgment of state inspector.	Not less than 100 ft. to 1 in. nor more than 200 ft. to 1 in.	Yes	Yes, also firewalls, dams, squeezes, etc.	No
Illinois	150 in gaseous mines, 100 in others	No	When necessary in judgment of mine manager or state inspector.	Not less than 200 ft. to 1 in.	Yes	No	Yes
Iowa	100	No	Not mandatory.	Not more than 200 ft. to 1 in.	Yes	No	Yes
Indiana	100	Yes	At discretion of state inspector.	Not less than 200 ft. to 1 in.	No	Yes	No
Kentucky	100	No	Mandatory in gaseous mines.	Not more than 100 ft. to 1 in.	No	No	No
Kansas	100 where coal is 3 ft. or more thick, more for thinner seams.	No	Not mandatory.	Not more than 100 ft. to 1 in.	No	No	No
Missouri	100	No	Not mandatory.	Not specified.	No	No	No
Montana	150 in gaseous mines, 100 in others	No	Mandatory in gaseous mines.	200 ft. to 1 in. or larger.	No	No	No
Michigan	200 in gaseous mines, 100 in others	No	Mandatory in gaseous mines.	Not more than 200 ft. to 1 in.	Yes	No	No
New Mexico	100	No	Law reads "when necessary."	100 ft. to 1 in.	No	No	No
Oklahoma	200 in gaseous mines, 150 in others.	No	No provision.	No smaller than 200 ft. to 1 in.	Yes	No	No
Ohio	150 in gaseous mines, 100 in others.	No	No provision.	Not less than 200 ft. to 1 in.	Yes	No	Yes
Pennsylvania	200 in gaseous mines, 150 in others.	No	Yes, in gaseous mines or sections where gas is found.	Not less than 200 ft. to 1 in.	Yes	No, but require location of each split.	Yes
Texas	100	No	At discretion of state inspector.	100 ft. to 1 in.	No	No	No
Tennessee	150 in gaseous, 100 in dusty and 85 in other mines.	No	In gaseous mines at discretion of state inspector.	100 ft. to 1 in. or 200 ft. to 1 in.	Yes	Yes; also all ventilating apparatus, elevations, etc.	No
Utah	150 in gaseous mines, 100 in others.	Yes	Mandatory, all mines.	100 ft. to 1 in. or 200 ft. to 1 in.	Yes	No	No
Virginia	150 in gaseous mines, 100 in others.	No	Mandatory in gaseous mines.	100 ft. to 1 in. or 200 ft. to 1 in.	Yes	No	No
West Virginia	150 in gaseous mines, 100 in others.	No	Mandatory in gaseous mines.	100 ft. to 1 in. or 200 ft. to 1 in. or 300 ft. to 1 in.	Yes	No	No
Washington	100	No	Mandatory in gaseous mines.	100 ft. to 1 in.	No	No	No
Wyoming	150	No	Not mandatory.	Not exceeding 200 ft. to 1 in.	Yes	No	No

Table II—Digest of Laws Concerning Coal-Mine Ventilation In the United States

Legislation	Fireproof Construction Required	Shot Firers Required	Number of Men on Split and Spacing of Crosscuts		Definition of Gaseous Mines
			Men per Split	Distance between Crosscuts or Breakthroughs	
Bureau of Mines Operating Regulations.....	At mines designed to employ more than 200 men, shafts, buildings and bottom within 200 ft. of each opening, main-line stoppings, seals, escape doors, etc., must be fireproof.	Yes, gaseous mines or at discretion of superviser; also may fire shots electrically from surface.	75	In accord with state laws, but not more than 100 ft.	An entire mine is rated as gaseous when 0.5 per cent or more of methane is found in more than one split
Alabama.....	Boiler and engine house, also underground stables and stoppings on main slopes.	No	No provision.	Not more than 70 ft.	When gas exists in quantities sufficient to ignite or explode . . . where gas exists in dangerous quantities.
Arkansas.....	Not required.	No	50	30 ft. in gaseous mines and 40 ft. in others.	Not defined.
Colorado.....	All surface buildings within 300 ft. of mine opening, also permanent stoppings, overcasts, etc.	Yes, except in longwall.	Old mines, 100. New, 65.	60 ft.	No fixed percentage of gas but generally where found in dangerous quantities.
Illinois.....	All surface buildings within 100 ft. of mine opening, also slopes, shafts, stables and mine bottom within radius of 300 ft. of shafts.	Mandatory where more than 2 lb. powder is used or where gas is generated in dangerous quantities.	100	60 ft.	Judgment of mine manager or state mine inspector.
Iowa.....	All surface buildings between mine openings. Boiler and engine houses must not be placed within 60 ft. of openings. Underground stables.	"Shot examiners" where coal is shot from the solid.	80; by special permission, 130.	60 and 70 ft. in entries. Breakthroughs must be at least 20 sq.ft. in area and crosscuts 25 sq.ft.	Not defined. Probably in judgment o mine inspector.
Indiana.....	No inflammable buildings near shafts. No boiler house within 35 ft. of opening.	Mandatory in all mines using more than 2 lb. powder or where gas is generated in dangerous quantities.	75	45 ft.	When state inspector finds explosive gas liberated in dangerous quantities.
Kentucky.....	Not required.	In gaseous mines where ordered by state inspector.	60	60 ft. but inspector may allow 90 ft. in special cases.	A mine in which the percentage of explosive gas exceeds 0.75 per cent at return of any one split in a dusty mine and exceeds 1.75 per cent at return of any one split non-dusty mine.
Kansas.....	Bathhouse fireproof construction.	Mandatory, all mines.	Mine must have 4 splits.	40 ft. and at least 21 sq.ft. in area.	Not clearly defined; mainly judgment of state inspection.
Missouri.....	Underground stables fireproof.	Mandatory in gaseous or dusty mines or where coal is shot from the solid.	50	50 ft.	Not defined. Probably in judgment of mine inspector.
Montana.....	Underground stables, permanent stoppings and overcasts; also no inflammable building between shafts on surface.	No	100	Crosscuts in entries 60 to 100 ft. breakthroughs in rooms may be 50 to 80 ft.	Not defined. Probably in judgment of mine inspector.
Michigan.....	Surface buildings within 100 ft. of fan and also underground stables.	No.	100	60 ft.	Mine that generates explosive gas of a sufficient quantity to be detected by ordinary safety lamp.
New Mexico.....	Fan on surface and also brattice cloth, overcasts and doors must be painted with fireproof paint or covered with metal.	Mandatory, all mines.	No provision.	No provision.	Mine that vents gas which in combination with air will induce or maintain an explosive condition.
Oklahoma.....	Partition between air shaft and stairway; also main stoppings.	Mandatory, all mines.	45	30 ft. in gaseous mines and 40 ft. in others	Mines where fire damp is, has been or shall be generated in sufficient quantities to be detected by ordinary safety lamp.
Ohio.....	Boiler house must be more than 60 ft. from mine opening. Underground stables.	No provision.	No provision	Crosscuts in entries 60 ft. and breakthroughs in rooms 40 to 80 ft.	Nearest definition is "A mine generating fire damp so as to be detected by a safety lamp."
Pennsylvania.....	All inside buildings, such as stables, pumprooms, etc., and main stoppings in gaseous mines.	In gaseous mines or sections where gas may be detected by safety lamp.	70, but 90 by special permission	Not more than 105 nor less than 48 ft.	Where explosive gas is being generated in such quantities as can be detected by an approved safety lamp; also in pillar workings.
Texas.....	Underground stables only.	No provision.	100	Not more than 60 nor less than 30 ft.	When the inspector shall find fire damp is being generated so as to require the use of safety lamps.
Tennessee.....	Not required.	Not mandatory but state inspector and company officials formulate rules governing shooting.	50	Gaseous mines: crosscuts 60 ft.; breakthroughs, 75 ft. Dusty mines: crosscuts 67½ ft.; breakthroughs 82½ ft. Other mines: crosscuts 75 ft.; breakthroughs, 90 ft.	Any mine liberating sufficient fire damp to be detected on the flame of a "modern lamp" may be so classed in judgment of inspector.
Utah.....	No inflammable structures on surface near mine entrances. Fans, also escape doors to adjacent mines.	Mandatory, all mines.	75	Crosscuts 75 to 200 ft., breakthroughs 50 to 100 ft.	When inflammable gas can be detected by approved safety lamp in any working place over certain time period, or such place shows air to contain 1 per cent or more, or if 0.5 per cent or more in any return current or abandoned working not sealed. Also in places where there is liable to be inrush of gas due to falls.
Virginia.....	Not required.	No	60 to 80	Not to exceed 80 ft.	Practically in judgment of state mine inspector.
West Virginia....	All surface buildings near mine openings, fan building and underground stables.	No	60 to 80	Not to exceed 80 ft.	Opinion of the Department of Mines.
Washington.....	No inflammable building on surface within 75 ft. of mine opening except tipple. Underground stable and main stoppings.	Mandatory in gaseous mines.	70 to 90	Not more than 60 ft.	Practically in judgment of state mine inspector.
Wyoming.....	Not required.	"Shot inspectors" must be employed at discretion of state inspection department.	50	Crosscuts 100 ft. breakthroughs 50 ft.	Where gas is found and at discretion of mine inspector.

to 1 in." Both probably mean the same thing and seek to prevent the operator from furnishing a map on which the workings will appear so small that the detail is illegible. Legislation is certainly indefinite when it specifies that structures must be fireproof when "near" a mine opening and just what constitutes a "dusty" or "gaseous" mine is open to argument in most of the states.

The variation in spacing crosscuts and breakthroughs and the limited number of men on a split seem entirely unnecessary, since the distance is not reduced in gaseous fields, excepting in Arkansas and Tennessee, which states produce a comparatively small amount of coal, and the number of men differs 100 per cent and more for no apparent reason.

LEGAL RESTRICTIONS ARE CONFUSING

One of the main difficulties created by this condition of the mining laws is the confusion in the construction, development or operation of mines by companies having properties in several states. The construction plans for a modern mine to be built in one state cannot be used in another, although the mining conditions may be alike and often the only distinction is that the property is divided by a state line. As an example of this confusion, it may be cited that 60-ft. crosscuts are ample in Illinois, whereas a competition mine across the line in Indiana is penalized on yardage and stopping costs because of the 45-ft. crosscut law in that state. In the same competitive area, one operator must build a fireproof plant while his neighbor, using wood, may build a duplicate mine, and ship his coal from the same seam to the same market and at the same freight rate but at a greatly reduced fixed charge for capital expenditure, especially when the laws differ as to wood-lined or fireproof shafts.

Very few of the states have any laws providing for the number of airways. An exception is Oklahoma, which has this odd law on its statute books:—

> "The work in all coal mines operated on room and pillar plan shall be prosecuted in the following manner and none other—to wit: Two entries must be driven parallel for ingress or egress of the air."

A literal interpretation of this clause would prevent one using a three or more entry system, but it is presumed the intent was to prevent single-entry operation. Only in a few states do the laws provide for such vital questions as pressure or exhaust ventilation, use of booster fans, percentage of methane, sealing old works, limitation of number of doors, minimum area of airways, etc., and it would be extremely difficult to frame laws broad enough and yet properly specific for general application.

To secure the few data presented herein it was necessary to read, several times, most of the coal-mining laws of each state. The general impression is thus created that codification would not be too difficult, that it is practicable and that it is highly desirable from almost every viewpoint.

The accident prevention problem, says a safety report of the Old Ben Coal Corporation, involves three fundamental activities, namely: safeguarding, education and co-operation. Experience has proven to us that the supervision of these activities in any coal mine is not a one-man job, but that satisfactory results can be secured only through co-operation between all parties.

High-Wage Policy

"Throughout America," says Capt. F. Walton-Brown, in *Colliery Engineering,* "the policy of high wages, irrespective of other conditions, is dominant and roughly speaking it appears that the time worked by American miners is about a shift and a half compared with the duration of the British shift. Hourly rates of wages are common, and it is considered that this is a far better basis than that of the shift. A definition of the working day, as extracted from the handbook of the American Miners Union, is as follows: 'An 8-hr. day means 8 hr. work in the mines at the usual working places for all classes. This shall be exclusive of the time required in reaching such working places and departing from same.'

"After four hours of work about a half an hour is allowed for a mealtime which is not included in the eight-hour period. Even allowing for the extra cost of living, which is rather more than double that of Great Britain, the wages received will be at least 50 per cent above what can now be paid here. The longer working day and the wonderful natural conditions, of course, account to a large extent for this difference. Personally, I consider that the high-wage policy could similarly be adopted in British mines with great advantage. If necessary a relationship between hours and wages might be established so that shorter hours might be worked when trade was good if the workmen preferred such a course to a further increase in wages.

FAVORS MAN-TRIPS IN BRITISH MINES

"The arrangements for transporting workmen to the faces are much better in America, and although one recognizes the great difficulty with which the older British mines would have to contend to provide equal facilities, it is suggested that all new mines should deal adequately with this service.

"Agreements in America, generally, although not invariably, are made for longer periods than is now the custom over here. This is of great importance, as it tends to produce periods of stability in the industry, and enables contracts, especially in the producing districts, to be made much further ahead. A similar innovation might, with advantage, be adapted here and arrangements might also be devised by which some variation in workmen's wages, up or down, would be avoided and an attempt made to pay an average wage over long periods."

It is said that the longwall system of mining is undergoing rapid development in Cape Breton, intensive work being done in the last district opened up. Any working face that can be advanced 8 to 9 ft. at each shift is producing at a rapid rate. This is being accomplished in some places. What remains yet to be done will become better known after the officials and miners have been trained to this method which is practically new so far as this country is concerned. Unfortunately for longwall mining so little of it has been done in the past in Nova Scotia that few native miners have any knowledge of it. It will take some time to get it going properly, but it is alleged by some engineers that the future of the mining industry rests upon the success of this method. They say that there is no doubt on this score, especially if mechanical mining is to become the standard practice.

Standardization of Mine Timbers Is Needed

Present Whimsical Specifications Cause Much Waste—Mines with Like Conditions Might Well Agree on Standards—Preservative Treatment Accorded Mine Timbers Before Installation Will Aid Standardization

By A. F. Brosky
Assistant Editor, *Coal Age*, Pittsburgh, Pa.

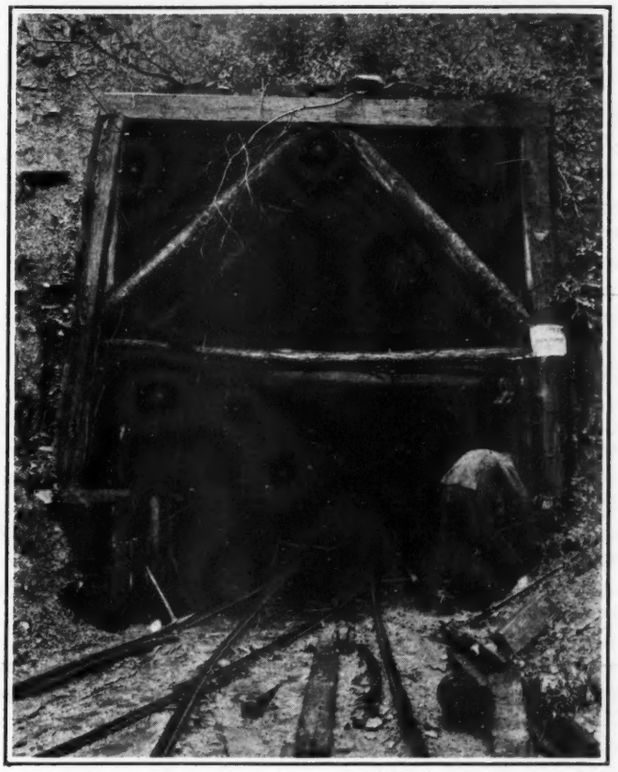
AN EFFORT IS BEING made to standardize, so far as the size and kind of wood is concerned, the mine timbers manufactured by the lumber companies of Pennsylvania. Lumber and coal companies are beginning a concerted attack on slip-shod sizing by the manufacturer and whimsical specification by the consumer. Both hope to establish certain standards governing wood products for mine use and thereby eliminate much of the waste which now ranges from 70 to 85 per cent.

The aims and progress of this campaign were described by Ralph A. Smith, secretary of the Pennsylvania Forest Products Manufacturers' Association, before the mining section of the Engineers' Society of Western Pennsylvania, in Pittsburgh, on Sept. 28. On this occasion Mr. Smith read a paper on "Mine Timber Standardization from the Standpoint of the Manufacturer."

This forest products association was organized last fall and has for its chief purpose the elimination of waste. Shortly after being organized it invited a number of coal companies to take part in an effort to standardize mine timbers. On Jan. 8 a standardization committee was appointed consisting of eight men, four of whom represented coal companies. This committee has already held several meetings and has begun the task of drafting a set of specifications for mine timbers. Likewise a committee has been appointed by the Engineers' Society of Western Pennsylvania to assist in the formulation of standards.

According to the Department of Commerce mine timbers used in 1923 cost at the mill about $45,000,000 and the total cost, including freight and the labor of setting them, was about $100,000,000. A saving of only 10 per cent, therefore, would be appreciable, said Mr. Smith. He pointed out the difficulties attending standardization at the manufacturers' end. In Pennsylvania there are some 16,000 manufacturers of various lumber and timber products. Only one of these employs more than 300 men and the average number of men employed is four. Ten per cent of the forest products is prepared by machinery of the portable type and 90 per cent is shaped by hand tools.

By reason of the seasonal character of their work, men engaged in the manufacture of mine timbers and other forest products must devote a part of their time to other pursuits. Since the association was formed, less than a year ago, more than 500 of the manufacturers have gone out of business. The point of consumption of the products of a concern frequently changes from year to year and standardization under such conditions is difficult.



Permanent Timbers Need Preservative Treatment

These timber sets, which hold the overburden at this mine portal are intended to serve their purpose for a good many years. Consequently they should be treated with a preservative. These are, but the treatment consisted only of dipping, whereas pressure treatment is usually conceded to afford better results. And, of course, the bark should be peeled off first, which has not been done in the case of the strutes and cross-ties here shown. The man in this picture is building forms for a concrete footwall, indicating that the job is intended to be permanent.

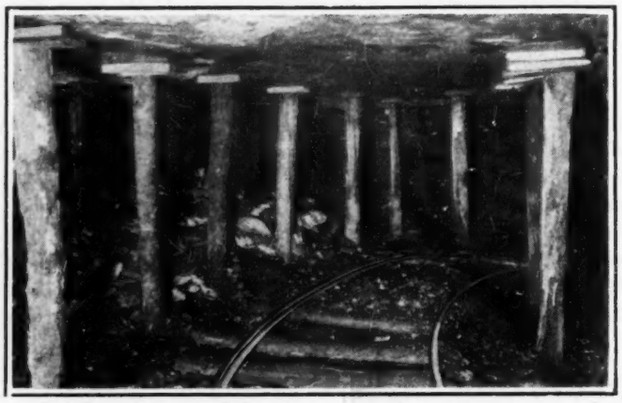
A saving in the cost of mine timbers to the coal companies might be realized through several channels. The expense might be lowered, for instance, if they were larger consumers of other forest products. Inasmuch as the cost of handling and installing mine timbers represents 65 per cent of the total, it behooves the coal companies to use products from only the best suitable species of trees. Some varieties have as much as fifteen times the lasting qualities of others. Freight rates on mine timbers should be substantially reduced. The freight charge on this product is 50 per cent higher than that of other base products of equal value.

As matters now stand, mine timbers of unequal quality are sold for one price if they approach fairly closely a set of general specifications. In these transactions, however, readjustments are made which cause the manufacturer to lose the selling price of 10 per cent of the timber shipped. On the other hand, the consumers lose about 20 per cent by accepting timbers that are not up to their specifications.

At least a partial solution of this condition obviously should be provided by standardization of mine timbers. At the present time the relations between the parties at interest are not sufficiently close, due to the fact that mine timbers are sold by the manufacturer to the consumer through the medium of middlemen or dealers; also because each coal company formulates its own

standards or specifications. These are so numerous and divergent that the manufacturer cannot logically use them as a guide in the making of his products. This chaotic condition should be greatly eased by a group of standards. As Mr. Smith views the situation, a solution will be effected by establishing uniform specifications or standards for groups of mines in which conditions are similar. Such standards would serve the lumber companies in manufacturing and distributing their products.

The association and the standardization committee appointed by it believe that mine timbers should be graded in somewhat the manner in which railroad ties are selected, that is, in accordance with definite standards. Railroad ties are graded to meet the requirements of the American Railway Association rules. Mr. Smith presented the draft of the general specifications that have been prepared, subject to correction, by the standardization committee.



Standard Timbers Prove Economical

Here are shown many posts in a rib section. One need use little imagination to visualize the great saving that would result in a place like this from the use of posts cut to standard dimensions. Fixed standards would eliminate needless sawing or chopping and would obviate the occasion for using a heavy prop where a light one would answer the purpose equally as well.

These specifications first of all denote the woods from which mine props shall be manufactured. They definitely enumerate the varieties of soft woods that are not acceptable and include a proviso allowing certain woods not specifically mentioned to be shipped only when specially ordered.

As to physical requirements, props shall be free from such defects as may impair their strength or durability, such as decay, large splits, etc. Uniform thickness throughout is required and those whose area is 100 per cent greater at the large end than at the small will be rejected. In the manufacture of mine props all knots are to be closely trimmed and the ends cut square.

Dimensions of props are definitely stated and in their manufacture these must be adhered to. They must be cut to exact length as this dimension will not be averaged; neither will the diameter, which must be measured at the small end, exclusive of bark.

The standards suggest white oak, chestnut oak, black walnut, black locust, chestnut, red mulberry and sassafras as suitable for mine ties without preservative treatment. Where the service is such that ties are worn out before they decay, red oak, beech, the birches, cherry, maple, hickory, the elms, butternut, gum, ash and honey locust are recommended as being suitable for the purpose. Mine ties of these same woods are suitable for long service utilization when treated with a preservative.

Mine ties shall be free from decay, large splits, shakes and any other defects of such proportions as might impair their durability. They shall be so hewed or sawed as to be straight, with top and bottom parallel and ends square. Bark shall be entirely removed from ties that are to be treated with a preservative.

The length and other dimensions of ties will not be averaged and must meet specifications. They will be graded in accordance with their thickness and width. The poles from which they are made shall be at least equal in diameter, exclusive of bark, to the width of the tie. Any wane in width or thickness of square sawn ties shall not exceed ½ in. as measured on the corners.

STRONG WOODS NEEDED FOR COLLARS

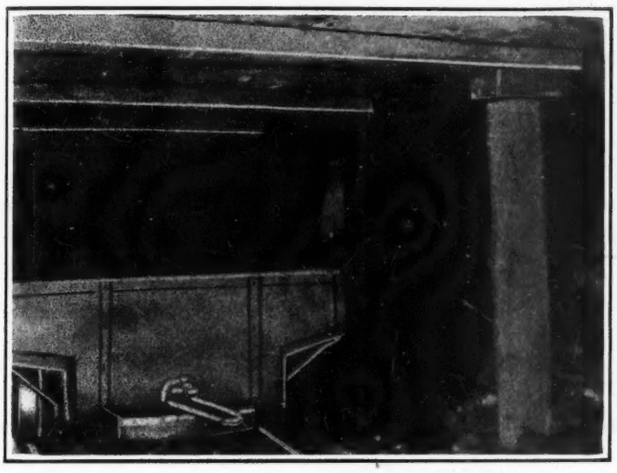
The woods recommended for crossbars are yellow and sugar birch, sugar maple, southern pine, white ash, elm, oak, beech, Norway pine and red maple. Their manufacture is governed by the same specifications as apply to mine ties. Railroad ties shall be graded according to American Railway Association rules and hardwood lumber for mine cars, planks, boards or heavy timbers shall be graded in keeping with the National Hardwood Lumber Manufacturers rules. The mining men on this committee are J. A. Barnhart of the H. C. Frick Coke Co.; C. W. Bates and S. E. Workman of the Pittsburgh Coal Co., and J. A. Neiser and F. B. Dunbar of the Hillman Coal & Coke Co.

Some interesting points were brought out in discussion. L. D. Tracy, mining engineer, U. S. Bureau of Mines, thinks that preservative treatment of many woods used in coal mining will have to be adopted as

Where Timber Costs Little

Fortunate indeed are those companies with mines situated adjacent to an adequate timber supply. This condition saves the coal company the profits that otherwise go to the lumber company, the middleman and the railroad. Such companies should preserve the advantage they enjoy by making the most of each stick of timber.

it has been in railroad practice. He believes this will compel standardization of mine timbers as these cannot be cut to fit in the mine after being treated without impairing their durability. Mr. Tracy related a few details as to the practice of the Clearfield Bituminous Coal Corporation, in central Pennsylvania. This company maintains its own saw mill and treating plant, at which the timber grown on its own forest tracts is manufactured. Every piece of timber used with the exception of pit posts is manufactured in accordance with exact standards.



There Will Be Standards and Standards

In this illustration are shown two classes of timbers, those which can be standardized to exact dimensions and those which can be standardized only approximately. Standards for props must have some leeway if they are to be manufactured and utilized economically. Sawn crosspieces, however, should and can be cut to exact size.

He is surprised at the great range of sizes specified for mine ties and cannot see that any deviation from four or five standard sizes—a limitation which he would place—would noticeably increase the wearing quality of a tie. The timber supply is a problem that is growing in seriousness to the coal companies, especially those in Illinois and the rest of the Middle West. The gravity of the situation can be allayed only by the adoption of preservative treatment as a practice. He has in his office several photographs of treated cap pieces that have been in service in a certain mine for about seven years. These are held in place by untreated blocks and wedges on which are fungus growths 6 to 8 in. long. These supports are rotted whereas the treated cap pieces show no appreciable deterioration. He is of the opinion that all permanent timbers and those not quickly destroyed by mechanical wear should be treated.

Trees Planted as Fast as Cut

The Clearfield Bituminous Coal Corporation, according to Mr. Tracy, is replanting trees as fast as timbers cut from its forest holdings are being used. The extent of its forest properties is such that replanted areas will stand for eighty years before they are re-cut.

Prof. Goodale, of the University of Pittsburgh, wanted to know whether lumber manufacturers are doing anything toward reforestation. Mr. Smith answered that these companies are protecting standing timber but are not replacing that which is cut. He claims that cut-over areas of hardwoods will reforest themselves in the majority of cases. The big problem involves the prevention of forest fires.

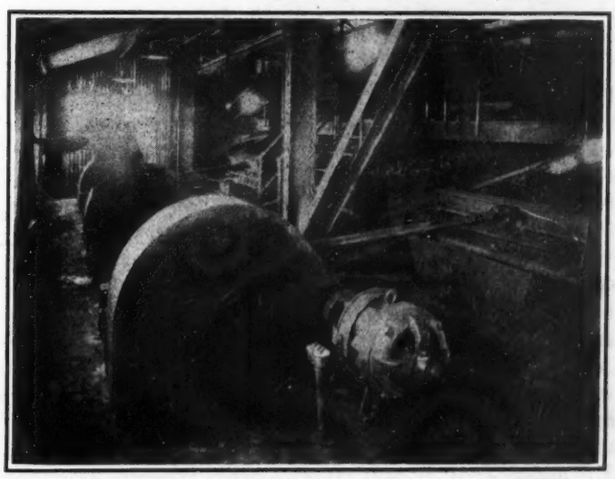
Mr. Tracy inquired whether any selective cutting was practiced by the manufacturers. "No," replied Mr. Smith, "and I hope it never will be." His experience has been that all trees should be cut as soon as they reach maturity. From that stage on the valuable part of the tree, the trunk increases in diameter slowly and further growth is confined chiefly to limbs. This subtracts from the value of the trunk and increase the cost of manufacture.

Chairman N. F. Hopkins, mining engineer, wondered whether an investment in reforestation from which no return was gotten until after eighty years, as with the Clearfield Bituminous Coal Corporation, would pay. Mr. Tracy offered the information that the nursery cost to this company plus that of setting out a seedling amounted to 1½ or 2c., and that in his estimation the return therefrom even after eighty years was much worth while. Mr. Smith would cut a timber tract every sixty years at least. Mr. Tracy accounted for the proposed practice of the Clearfield Bituminous Coal Corporation by stating that it has a sufficient reserve of timber land to require cutting of any tract at intervals of eighty years only.

Standard Props Are Used

S. E. Boardman of the Pittsburgh Coal Co. said that all props used by his company are standard as to size. Only four standard sizes of mine ties are used. One of the engineering policies of his company is that all big ties shall be treated with a preservative.

Mr. Boardman attacked the remarks of Mr. Smith to the effect that the burden of mine-timber standardization rests upon the coal companies. Why should not the lumber companies assume at least half the responsibility, queried Mr. Boardman. In a study of the timber expense of his company for one year, he discovered that the freight cost represented 25 per cent of the total. The transportation charge for mine timbers to operations near Pittsburgh is unjust in that it is about twice as high as that of coal, over a haul which is roughly half as great. The railroads, he said, carry mine timbers in "any old kind of car" whereas they must employ well-maintained cars for hauling coal. Furthermore, mine timber traffic in many cases eliminates empty hauls.



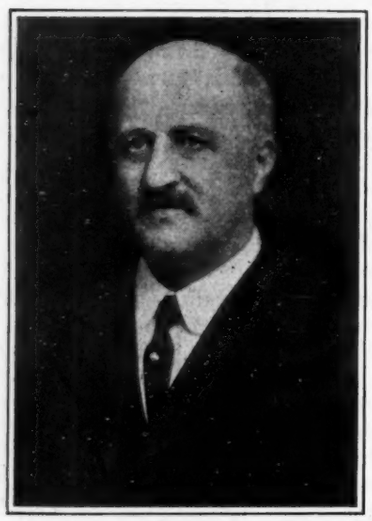
Shaker Screen Separates Coal of Stove Size

Here are shown double-deck shakers at New Orient which separate the chestnut from stove coal. The upper decks have 1⅝-in. round openings and the lower have 1⅛-in. round openings. Note the two connecting rods which radiate from each eccentric drive. The lower rod imparts shaking motion to a secondary screen which is located under each of the stove-coal shakers.

National Mining Institute Holds Its Annual Field Meeting at Pittsburgh

Session Devoted Almost Exclusively to Coal and Steel—Trip Made Down River to Big Clairton Steel Plant—Pittsburgh Coal Bed's Failings and Identity of Certain Alleged Outliers of Seam Discussed

A LARGE attendance—between 500 and 525 persons—an entertainment that will long be remembered, good papers and instructive visits characterized the meeting of the American Institute of Mining and Metallurgical Engineers at Pittsburgh, Oct. 5-9, including in that period the day when several round-table conferences on coke and steel were held by those who had come to attend the main sessions. An endowment fund of $1,000,000 for the support of the work of the A.I.M.E. is to be sought by that organization according to Charles F. Rand, its treasurer, who made a brief address toward the close of the general meeting of the Institute in the Carnegie Music Hall, Pittsburgh, Pa., Oct. 6. At this meeting Graham Bright, consulting engineer, presided. S. A. Taylor, president of the Institute, delivered an address on the development of mechanical operation in the mines of the Pittsburgh district.



S. A. Taylor

J. S. Unger, of the Carnegie Steel Co., discussed the development of the technique of the steel industry, saying that today the presence of even sulphur in small percentage in steel was beginning to be recognized as not harmful. The addition of copper to steel had greatly increased the life of the latter. Houses he predicted would soon be quite generally built of steel. About one-third of the steel produced each year was destroyed by corrosion. H. Foster Bain, secretary, described the trip through the mining regions just completed by the president and himself. William Kelly and J. V. W. Reynders also made short addresses.

After an organ recital and luncheon the coal and coke committee and the iron and steel committee held technical sessions in the Carnegie Institute lecture rooms. At the former, with J. P. Williams in the chair, G. H. Ashley described the Pittsburgh coal bed in Pennsylvania. Mr. Ashley said this bed at one time covered an area at least twice as wide as at the present time and probably occupied three times as large an acreage. He added that it was at one time thought that the Pittsburgh bed had been mined in the Broad Top region, but recent studies in Somerset County had shown that the Conemaugh group thickened from about 600 to 900 ft. rapidly in going from the Ligonier basin to central Somerset County. It was probably as thick or thicker in the Broad Top region. From this it has been concluded that the bed in the Broad Top region referred to is in the upper Conemaugh series and not in the Monongahela.

J. B. Sisler confirmed the thickening of the Conemaugh in Somerset County, and E. V. D'Invilliers said that as far back as 1890 it had been well established that the Conemaugh measures in the Wilmore basin were at least 900 ft. thick. A. C. Fieldner asked if the spore exines in the bed had been examined, and J. B. Sisler said that before the report containing this information was published that inquiry would be made. Frank Haas said the Berlin coal in Somerset County had little resemblance to the Pittsburgh seam though it had been regarded as being on the Pittsburgh horizon.

J. A. Brownocker, state geologist of Ohio, read a paper on the Pittsburgh coal in that state and described the important "want" in the southern part of Monroe County and Morgan, Washington, Athens, and Meigs Counties. In Athens and Morgan Counties, however, some of the horizon of the Pittsburgh coal was commercially productive. This want, S. A. Taylor said, extended over from the West Virginia side of the Ohio.

No Coal Coked in Ohio

Mr. Brownocker said that because of the high percentage of sulphur, no coal had been coked in Ohio for twenty years. Mr. D'Invilliers asked if any attempt had been made to clean the coal by washing, and J. R. Campbell replied that with wet washing the ash could be greatly reduced. The sulphur also could be lowered where its percentage was not too high.

I. C. White, state geologist of West Virginia, read a paper on the Pittsburgh seam in that state and the big "want" therein, caused apparently, he said, by the depth of the water in that area during the period of deposition. Some islands may have existed in that lake, but he doubted it. Care should be exercised in trying to open the Pittsburgh bed in that extensive area. Near Braxton County the coal disappears. This disappearance is readily ascertained, for the coal is high in the hills. Further south near the Ohio River the coal is found again, but at those points it is so high in the hills that it does not cover any large areas.

Two articles on the giant Nemacolin mine of the Buckeye Coal Co. were read by A. W. Hesse, chief engineer, and W. Z. Price, assistant superintendent of that company. The first was on the construction work and the second on mine operation. Excellent motion pictures accompanied the second paper. In the evening a smoker was provided at the Pittsburgh Athletic Club at which Luke Barnet, a public entertainer, impersonated a Bolshevik engineer and solemnly told those assembled that they had established complete satisfaction and accord in the Russian mines by the simple expedient of letting every miner weigh his own coal.

On Thursday, Oct. 7, an all-day trip was provided up

the Monongahela River to Clairton, where the coke ovens and the ammonium sulphate plant were inspected. Here are 1,134 ovens operating and 348 under construction. These when all completed will carbonize 30,000 net tons of coal daily. This will produce 22,000 net tons of coke, 215 million cubic feet of surplus coke-oven gas, 360,000 gal. of coal tar, 750,000 lb. of ammonium sulphate and 90,000 gal. of benzol. It is the largest byproduct plant in the world. The coke produced is distributed to the various furnaces of the Carnegie Steel Co. The gas is piped throughout the district for fuel in the steel plants and the tar is used for the same purpose in the various open-hearth operations. The ammonium sulphate and benzol are sold for general distribution.

On the return the McKeesport mills of the National Tube Co. were examined, where the process of rolling the ingots and the manufacture of tubes were studied in detail.

Low Recovery Saves Pittsburg

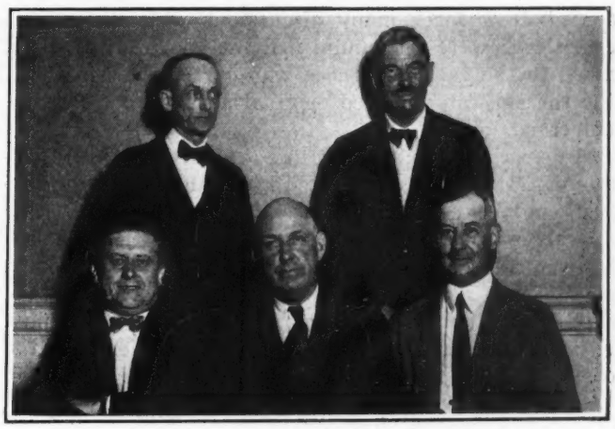
In the evening the Mining Standardization Correlating Committee held a well-attended meeting at University Club under the chairmanship of Dean E. A. Holbrook, of State College. Two meetings of great interest to coal men were held on Friday, Oct. 8, by the American Institute of Mining & Metallurgical Engineers as well as two others on gas and iron and steel respectively. The coal and coke meeting was held in the Carnegie Institute Lecture Hall under the chairmanship of M. D. Cooper, of the Hillman Coal & Coke Co. A paper was presented by N. G. Alford, a consulting engineer of the firm of Howard N. Eavenson & Associates, and by Benjamin Hoffacker, another consulting engineer. This paper was prepared by several engineers, including F. B. Dunbar, of the Hillman Coal & Coke Co. It detailed the methods of mining the Pittsburgh coal bed.

The low recovery of coal in the Belmont County field of Ohio was discussed at some length, J. B. Sisler saying that up to 1923 only 73 per cent of the coal was recovered owing to the bad roof. Mr. Alford said that the plan of working had been little changed and could not well be modified now because of union restrictions. He said the percentage of extraction was only about sixty today and in years past was around fifty.

J. W. Paul, of the U. S. Bureau of Mines, said that in some old mines in the Pittsburgh field which had recently been reopened, the coal was worked in checkerboard fashion, only about 30 per cent of the coal being extracted, the blocks being 50 ft. square. It was probably conservative but wasteful mining of this sort that had saved Pittsburgh from caving trouble.

He added that the short rooms of the concentration method might be expected to result in decreased hazard to life. Long rooms caused accidents. The coal crushes and the roof weakens, making the hazard greater. The heaving of the bottom also puts the track out of line and grade causing transportation accidents. C. T. Starr said that about a dozen companies were rock-dusting rooms. Mr. Paul added that the men rock-dusted the ribs, floor and roof by hand and were paid a yardage compensation for this work.

Ancel St. John, consulting physicist of New York, detailed the method and theory of making radiographs and diffraction patterns of coal. He said that the X-rays might be caused to pass through 2 ft. of coal without difficulty, judging by their penetration through the human body that contained the same elements and therefore had the same absorptive qualities.



Group of Leading Spirits

Standing from left to right are: H. Foster Bain and G. H. Ashley. Seated, left to right are: J. T. Ryan, D. A. Lyon and J. W. Paul.

H. F. McCullough's paper on the time element in the control of face conditions in coal mining was read only by title, the author being absent. H. M. Chance presented a paper on "Appraisal of Coal Property Values," taking time only to reply to the criticism supplied by Henry Louis, of Newcastle-on-Tyne, England. Mr. Chance said that to assume that the value should be based on the assumption that the property will be placed under skillful management was not justifiable. The management of a skillful engineer might not be productive of the profits anticipated. In that case the valuation would be inflated. The assumption that the property would be worked under the methods now customary was more reasonable. It would be wrong to base a valuation on a probability.

Can Values Be Based on Royalties?

R. V. Norris, consulting engineer, Wilkes-Barre, Pa., said that present value of royalties was not a fair basis. If leasing does not yield a higher return than sale value, why lease coal? The lessor takes a risk and seeks a profit. The coal may not prove as good or as extensive as assumed. Then the lessor loses. Consequently he puts his royalty figure higher than the selling price, which is the price set when the buyer takes all the risk. Royalty values are not based on the quantity of coal. Some lessors in the anthracite region during earlier years got high royalties, but the operators who agreed to pay them saw to it that they got low minimums. They did not expect to mine the coal when the prices were low and they were not doing so. To assume a certain rate of mining for such coal greatly exceeding the actual rate would put too high a present value on the coal.

G. H. Ashley, state geologist of Pennsylvania, said that royalties quite frequently had little relation to value being set regardless of distance from railroads, thickness and purity of seam. The price in Indiana some years back was, for instance, 3c. per ton. This covered the whole of the coal deposits of the state. Such state-wide and arbitrary royalties could not form any true basis for valuation.

George S. Rice, mining engineer of the U. S. Bureau of Mines, was chairman of the ventilation session, held in the auditorium of the U. S. Bureau of Mines station. About 75 men attended this meeting. The papers pre-

sented drew forth many discussions which in almost every case were left unfinished for the want of time, much to the regret of those who participated in them, for the subjects were so original as to be highly controversial.

A paper on the "Occurrence of Firedamp in Bituminous Mines" was presented by Frank Haas, consulting engineer of the Consolidation Coal Co., this appearing in the Oct. 7 issue of this magazine. He said his company has a mine which produces 4,000,000 cu.ft. of gas each day. Provisions have been made to take care of this quantity and more, inasmuch as the efflux is gradually increasing. He is of the opinion that the coal is not the primary source of the gas.

WHERE CRUSHED COAL LIBERATES METHANE

Mr. Rice declared himself surprised at the great volume of methane liberated at this mine; he has no record of any other mine which produces more. According to Mr. Rice the origin of methane underground is clouded by conflicting evidence. Some coals are definitely known to give off large quantities of gas when crushed; for instance, at atmospheric pressure, coal in the Crow's Nest Pass field has given off gas which in volume is equivalent to six times that of the coal itself.

Dr. E. A. Holbrook, dean of the school of mines at Pennsylvania State College, could not resign himself to Mr. Haas' belief. "Why then," he asked, "does the flow of gas decrease uniformly in most mines as virgin territory is tapped by entries?" He said the occurrence of gas must have some reference to the permanent ground-water level, for above it gas is generally absent but below it gas is always likely to be encountered.

It is the opinion of S. A. Taylor that at least a portion of the gas originates in the coal. He feels that gas is released when coal is broken down from the solid state. In western Pennsylvania mines, entries tend to reduce the flow of the gas which originates in the coal. In mines developed by drift in the Pittsburgh seam, gas is not usually encountered until after the first roof break occurs, and it may not be then. Dr. Holbrook inquired whether other hydrocarbons besides methane should not be found in mine air if natural gas migrates and contributes to its content. Mr. Rice wondered whether a catalytic action of some sort might take place to remove the other hydrocarbons during the migratory passage of natural gas from adjacent strata to the coal horizon. He based this thought on the fact that the natural gas from some wells contains unusually small percentages of hydrocarbons other than methane.

In defense of his contention Mr. Haas stated that no noticeable decrease of gas has been observed in several mines of his company during idle periods of as much as a year. He thinks that wet mines might be less prolific of gas than those which are dry, and suggests that when crevices are filled with water no space is available for occupancy by gas. When this water is drained the release of gas might follow.

John A. Garcia, consulting mining engineer, of Chicago, contributed a paper on "State Coal Mining Laws Concerning Ventilation." He cannot believe that a standard set of coal-mining laws for all states is practicable, but suggests that the unnecessarily wide variations might be removed by a drive to secure a more uniform code. His paper appears in this issue of *Coal Age*.

Mr. Garcia thinks the interval between crosscuts, which varies from 30 ft. to 105 ft., should be adjusted. The cost of constructing and maintaining stoppings is a big item, especially in Illinois and Indiana, where the intervals are 60 and 45 ft. respectively. He would like to see the Institute draw up, as a basis for state regulation, a code suitable to operators, miners, lawyers and legislators.

Dr. Holbrook saw no reason why a single code could not be made that would be applicable to all states and districts. The U. S. Bureau of Mines regulations governing coal mines on leased government lands are uniform. Why should not state laws also be made alike?

State Mine Inspector Ira Thomas, Johnstown, Pa., agreed with Dr. Holbrook's proposal. He pointed out, however, the difficulty which would be met in getting the various states to agree on a code. Efforts to bring up to date the Pennsylvania mine laws as of 1911 are opposed first by the miners and then by the operators. Proposed new systems of mining demand a revision of these laws.

At the last session of the Pennsylvania Legislature an attempt was made to facilitate long-face mining by making it lawful to provide an interval of as much as 350 ft. between crosscuts, as against the present limit of 105 ft. These entries were intended to be ventilated by line brattice in gaseous mines and by an auxiliary fan and tubing in non-gaseous mines. The bill was not considered because it was not lobbied. Departure from the law in this respect is being followed under the discretionary power of the state mine inspectors.

RULES FITTED TO CHANGING CONDITIONS

Dr. J. J. Rutledge, chief of the Maryland Department of Mines, some years ago was a member of a commission which prepared a code for the operation of metal mines in Wisconsin. After much debating the miners and operators finally agreed to accept certain recommendatory rules. He thought it well to supplement statute laws with such rules, the latter to take care of new developments in practice.

Shifting of mine management personnel from state to state is unfortunate because of the difference in mining laws and the dangers thus introduced, said Mr. Rice. Leasing of government-owned coal lands hinges on the acceptance of the U. S. Bureau of Mines regulations governing their operation. These are not intended to interfere with state mining laws but rather to dovetail with them. Any provisions in the government regulations not covered by state laws must be accepted. The government regulations are more or less flexible. With permission from Director Scott Turner, he presented, for consideration only, a statement of the Bureau on the subject of gassy and non-gassy mines. *Coal Age* will publish this paper shortly.

Dr. Rutledge is convinced that a quantitative method should be employed to determine whether a mine is gaseous or not. He knows of one mine in Pennsylvania which was classified as gaseous because gas from a borehole was found in its air. Robert M. Lambie, chief of the Department of Mines of West Virginia, declared that both the regulations governing ventilation and the ventilation practice were radically wrong and should be changed. The mining laws of his state were revised in 1925, so West Virginia could not be said to be opposed to progress. The laws of West Virginia now require that crosscuts be made at intervals of 80 ft. with the exception that the interval may

be increased at the discretion of the state mine inspector as a means of making new systems of mining possible.

The idea of definitely differentiating between gassy and non-gassy mines was approved by Ira Thomas. He remarked that all should begin to realize that the next decade will see the room-and-pillar system as a thing of the past. The 1911 laws of Pennsylvania are far from adequate when applied to today's demands. In the words of Mr. Thomas, certain mine inspectors in Western states contend that there are no non-gaseous mines. He alleges there are. In certain sections of Pennsylvania, where mining has been in progress for over 60 years and where coal under hundreds of square miles has been exhausted, no gas has ever been discovered. Mines in such areas must logically be considered non-gassy.

Dr. Holbrook said that "most of us are shocked at the indiscriminate use of auxiliary fans" with tubing as a secondary means of ventilation. He offered for consideration this resolution: That the widespread and increasing use of the auxiliary fan without adequate knowledge of its limitations and dangers be deplored.

A Few of the Members of a Coal and Coke Committee Session

Taken Outside Carnegie Institute Building After Meeting

The resolution was seconded by Frank Haas and then unanimously approved by an "aye" vote, but without any consideration from the floor. One man made an attempt to ask for certain qualifications, but Dr. Holbrook answered that he would not withdraw or qualify the resolution. He explained that he desired to have this resolution recorded for further consideration at subsequent meetings.

In the afternoon the members drove to the experimental mine at Bruceton, Pa., where an interesting program was provided. Included among the items was the ignition of a cloud of coal dust by an electric arc in the entry of the experimental mine. The dust was blown on the arc by a blast of compressed air.

A "gas"-air mixture was exploded in a 12-in. steel tube 100 ft. long. The first attempt failed, perhaps because the proportion of "gas" at the orifice of the tube was slightly below 5.6 per cent, the desired proportion. Flame in a "gas" mixture of such a percentage is not sure of propagation as the tube takes the heat from the primary ignition and so makes the "gas" less readily flammable. A 12-in. tube is not truly flame-resistant, as one would use that word, but it is more so than a large entry with walls that absorb little or no heat. The proportion of "gas" in the tube was raised to 6 per cent and the flame lazily traveled inward, began to oscillate as it progressed and at the end of its travel detonated with a bang. But by that time the "gas" was nearly all consumed, and the detonation was not such as would result in much damage.

In a steel gallery a blown-out shot of permissible was fired from a cannon in the presence of coal dust which it failed to explode. Then a keg of powder was set off by placing it on a bolt in a mine car through which possibly 208 volts were passing. This experiment balked for a while, till the paint was diligently scraped off the contact between bolt and keg. A well-painted keg is to a certain degree insulated. One slightly rusty is more likely to give the result so much dreaded. Later a blown-out shot of black powder was fired into coal dust in the steel gallery with the inevitable result. Flame of exploded coal dust issued from all the vents along the length of the gallery.

The explosion in the experimental mine followed. The cannon from which the blown-out shot was to issue was placed 180 ft. from the mouth of the portal and that distance as well as 220 ft. inby was sprinkled with coal dust. In all, 800 lb. of this dust was used. Inby, the mine was rock-dusted copiously—5 lb. per foot. The explosion, while not as severe as some others have been, was sufficiently strong to lift a mine car across the little stream that flows past the mine, where it buried itself in the opposite hillside. It was not, it is said, as heavy an explosion as that which occurred on the occasion of the visit of the state mine inspectors. The flame set fire to a tree at a height of about 50 ft. Though the explosion was violent, the rock dust on the ribs, roof and floor extinguished it in 350 ft. as was attested by the non-fusion of tin foils placed beyond that distance. Thus 600 ft. at the end of the entry probably was kept entirely free of flame.

The day finished with the banquet, at which Howard N. Eavenson was chairman. S. A. Taylor discussed the contributions of Pittsburgh to technical science. C. F. Kettering, General Motors Research Corporation, made an address on the relation of research to successful business operation. He was followed by Col. Irving O'Hay who gave a description of life in an inimitable manner in the course of which he aimed many shafts at the previous speakers. A medal was given to S. P. Kinney for the best research on blast furnaces during the year 1925. On Saturday the visitors made trips to many local plants.

Why Does Some Coke Allow Charge in Blast Furnace To Become Cold?

Round Table Conference Reveals That Coke Which Is Combustible Enough Alone May Fail if Not Sized and if Blast Is Badly Distributed—Iron and Flux Hamper Burning

Staff Correspondence

THAT THE REACTIVITY of coke to air, steam or carbon dioxide is not a complete measure of its combustibility in the blast furnace was the contention of all those attendant on the "round table" on the combustibilitiy of coke held in the U. S. Bureau of Mines Experimental Station Building, Pittsburgh, Pa., Oct. 5, as an opening session of the 134th meeting of the American Institute of Mining & Metallurgical Engineers.

The parties sending delegates to the round table were the U. S. Bureau of Mines, the American Society of Testing Materials, the Coal & Coke Committee of the A.I.M.E., the Eastern States Blast Furnace & Coke Oven Association, the Gas and Fuels Divisions of the American Chemical Society, the Southern Ohio Pig Iron Producers Association and the Carbonization Committee of the American Gas Association. A. C. Fieldner, chief chemist of the U. S. Bureau of Mines and superintendent of the Pittsburgh Experiment Station, presided.

A. C. Fieldner

Ralph W. Sweetser, of the American Rolling Mills Co., who represented the Southern Ohio Pig Iron Association, opened the discussion at the request of Mr. Fieldner. He protested against the statement made in one of the reports of the Bureau to the effect that one cannot by a change in oven practice alter the combustibility of the coke thereby produced.

He held that some coke was relatively incombustible and exhibited a piece that had gone through the furnace unconsumed. This coke he said had about 15 per cent ash. Some of the coke received during the War was so bad that it was necessary to reduce the draft, thus decreasing the iron output to such an extent that a conference was called in Washington to ascertain the causes of the reduced output.

He said the path of the coke in the blast furnace had definitely been located as lying along the walls of the bosh. The path of the iron was 18 to 36 in. from the walls. In one case the top of a furnace blew off and the interior was wetted down. It was found that the coke formed a loose lining around the bosh 30 in. wide. The iron came down within that lining, and in the center the gas passed up. In some cases, however, where the fuel failed to give sufficient output of heat due to its incombustibilitiy the iron came down with the coke and could be found impregnating it. Mr. Sweetser observed that S. P. Kinney of the U. S. Bureau of Mines has ascertained that all coke is burned within 40 in. of the nose of the tuyeres.

H. J. Rose, of the Koppers Co., Pitsburgh, Pa., said that by correct coke practice the combustibility can be changed. The size of the coke was important as was likewise the closeness of screening, but the chemical reactivity was important also. One can increase the combustion of coke almost indefinitely by raising the air pressure, but this has certain disadvantages in the making of pig iron.

Mr. Sweetser said that the English had made tests on the reactivity of coke ground to 100 mesh and under. This might be a good way to find an index of reactivity but what the iron men wanted was information about combustibility which he regarded as a wholly different matter.

It was desirable, he said, that coke should be large and hard. A cold furnace was the result of using excessive air. Some coke cannot be burned no matter how much air is provided. A cold furnace gave an iron too low in silicon. It was what steel men called "wild iron." He contended that if coke was combustible you could hardly put too much air in the furnace.

On the other hand, Mr. Rose declared that no matter how much air was driven into the furnace the coke would use it so completely that no oxygen would be found above the fuel surface. In fact, he had constructed an 18-in. refractory-lined cylinder, filled it with the stove size of coke and had driven 30,000 cu.ft. of air through it. The blast actually lifted the coke off the top of the fire, but the escaping gases contained no oxygen.

G. W. Hughes, of the Pittsburgh Steel Co., Monessen, Pa., said that it was bad practice to mix 48-, 72- and 96-hr. coke in the blast furnace and that exceptionally hard coke was not desirable. The cells should be open

In the headpiece is shown the entrance to the experiment station of the U. S. Bureau of Mines at Pittsburgh, Pa. The session of the Institute devoted to ventilation was held in the auditorium of this building on Friday morning.

but not to such an extent as to weaken the coke to a degree that would make it fail under the load. If there is much fine breeze it mixes with the iron and will not burn. It makes a "gooey" mixture that blocks the furnace and prevents it from functioning properly. The fine breeze is trapped by the iron, and though it is just as pure carbon as the lump coke it will not burn. Thus the slag is cooled. The air passes through the bed in channels and one side is likely to receive no air. For this reason the coke that is large and ready to burn receives little heat and burns slowly. No coke should be smaller than will be retained on a 1-in. mesh. Otherwise the coke will "scaffold."

P. Nicholls, fuels engineer, of the U. S. Bureau of Mines, assented to the opinion that combustibility should be distinguished from reactivity. J. D. Davis, fuels chemist, U. S. Bureau of Mines, detailed the laboratory studies being made on the reactivity of coke, saying that the reagents used were steam, carbon dioxide and air. The ignition temperature of coke was in a sense a measure of its reactivity and was being studied.

The reactivity was relatively the same whether steam, carbon dioxide or air were passed through coke; each kind of coke reacted similarly to all three. The kind of coke that reacted well to steam, reacted well to carbon dioxide and to air. Also when coke was sized from 1 to 1½ in. or from 10 to 20 mesh the type of coke that had a high reactivity when of the larger size had a similar reactivity when smaller.

CAN'T OVERBLOW FUEL MASS

O. P. Hood, chief mechanical engineer, U. S. Bureau of Mines, said that it had been generally recognized by mechanical engineers that, though it was possible to overblow a thick bed of fuel in the sense that particles of fuel might be carried up the stack it was not possible to blow the fuel so vigorously as to let the oxygen pass through the coke without combustion. It must be remembered, however, that in a fire under a boiler or in a producer there is no great quantity of impurity whereas the presence of iron ore and flux in a blast furnace made the impurities (from a combustible point of view) unusually high. The difficulty exists not in getting the coke to burn but in getting the air to the coke. This is a mechanical, not a chemical problem. The question is not so much "What is the combustibility" as "What is the opportunity for combustion?"

Mr. Fieldner remarked that it would seem that none of the cokes had such a low point of ignition or such a high reactivity as low-temperature coke. To his mind this suggested the characteristics of activated carbon and he questioned whether further inquiry should not be made into the value of this form of coke.

W. B. Havens, representative of the Eastern States Blast Furnace and Coke Ovens Association, said that slow-burning coke gave a hot hearth and that fast-burning coke a cool hearth. The size of the coke he regarded as the greatest controlling factor. He viewed it as a more important consideration than the method of coking, thus in a degree confirming the conclusions of Royster, Joseph and Kinney in Serial No. 2524 which R. M. Sweetser had attacked. To his mind the nature of the coal from which the coke was made was more important than the method of coking.

Mr. Davis said that coke consisted of cells and partitions between cells. The cell walls were often quite incombustible. A book issued by the German Koppers states that they are of graphite. This he questioned, but it was evident the partitions which soon showed ash on their faces were more combustible than the cell walls. Gradually reactivity seemed to decline, whether because of the ash forming on the face of the recess between the cells or for some other reason he could not say.

Mr. Havens declared that Benham coke was fast-burning because of its thin cell walls. It seemed that early notions that large cells were desirable was not borne out by recent observations. Thinness of cell walls was the great desideratum. Higher-ash cokes, he added, burned slower than those of a lesser ash content.

Mr. Rose declared that the material of which the cells were made was probably super pitch rather than graphite, as Mr. Davis suggested. The temperature of coking was hardly high enough to form graphite.

With this the session adjourned but at the close of the afternoon meeting on "Coke Testing" Mr. Sweetser proposed that the "combustibility of a blast-furnace coke be defined as the rate of complete gasification of that coke in front of the tuyeres under standard conditions of temperature and volume." Mr. Davis seconded the motion. Mr. Havens said he would have to vote against the motion because he did not believe the quality mentioned capable of measurement. He did not, at any rate, see how it could be measured. Mr. Sweetser admitted he did not know, but he believed that if the scientists knew what the practical men wanted measured they might be relied upon ultimately to find some way of measuring it. Richard Franchot, Washington, D. C., said measurement was easy. All that was needed was to measure the air going into the furnace. As all the air was consumed a measure was afforded as to the combustion of the coke.

Mr. Havens demurred. Suppose with a current of air of 40,000 cu.ft. per minute five charges were put through the furnace with a certain coke and only three charges with another in the same time, were the cokes of equal combustibility? Mr. Havens pointed out also that with a blast furnace there were no such things as standard conditions of temperature and volume. Those conditions were functions of the very combustibility that was being discussed.

INTRINSIC COMBUSTIBILITY

R. Dawson Hall stated that what Royster, Joseph and Kinney referred to was intrinsic combustibility and that this apparently had little to do with the coking process. In the end when considering the combustion of coke, size must be taken into account but crushing and uniform grading are not parts of the coking process though certain kinds of coking may give weak coke or fines that will tend to prevent proper combustion. This, however, was naturally overlooked by the monographers as incidental only. Intrinsic combustibility was well represented by any index of reactivity. It was straining a point to say that the true measure of combustibility was that in which the combustible was burned in the presence of iron ore, flux and slag.

Besides, the speaker continued, the air in the blast may be traveling normally or in ill-distributed channels. Are we to assume that we are measuring fuel value when the fault is not with the fuel but with the action of the furnace, and has nothing to do with the fuel? Mr. Sweetser amended his motion so that the question might be discussed at the next meeting of the conference.

Standards Await Determination Of Furnace Objectives

Cannot Make Testing Regulations That Will Really Aid Industry Until Furnace Men Determine What They Want—Sizing the Big Factor

WHEN THE ROUND-TABLE conference on "Coke Tests" met Oct. 5 at the U. S. Bureau of Mines to discuss the testing of coke, A. C. Fieldner, who presided, called attention to the fact that the consumer of coke did not seem to know what kind of product he wanted. Coke might be tested in many ways and many factors might be determined, but why keep testing coke commercially and why keep condemning or accepting it for qualities that are not essential? In fact one might be found accepting coke for its detrimental qualities and rejecting it for its good points, if one did not know desirable from undesirable characteristics.

The meeting was called to thresh out this subject so that the American Society of Testing Materials might not devise and standardize tests having no relation or a false relation to the true needs of the coke industry. The blast furnace men are developing new views as to the desirable qualities of coke. They used to call for large cells believing that with a large cell the air had a better opportunity to consume the coke and thus burn rapidly, making a hot furnace. Now a doubt has arisen. What does the coke consumer want—large cells, many small cells giving a large percentage of cell space or only a few cells? If the cell walls will not burn readily, are a large quantity of cells and thick walls an advantage? That is the preliminary matter which those who would prescribe tests must determine. The question seemed simple, because the coke makers at one time thought they knew just what they wanted, but observations have since shaken their faith. They are not wholly in agreement as to what they really want and until they are discussion of standards is a waste of effort.

It is clear that the coke must be able to withstand the weight of the furnace burden, but tests of strength of inch cubes under compression have been found extremely irregular; so uncertain, said Mr. Fieldner, as to render such determinations undesirable. For chemical tests the taking of large samples was necessary. This constituted another difficulty. New physical considerations are taking the place, said the speaker, of the old compression tests. These are the shatter and rumbler determinations. The reactivity of coke as a test to determine the relative values of the product might sooner or later come before the Society for Testing Materials, but no action would be taken so long as the blast-furnace authorities showed so much uncertainty as to its value in ascertaining the action of coke in the furnace. The percentage of cell space and the real and apparent density are matters that may be determined but are blast furnace men certain just what relation these bear to the action in the bosh of the furnace?

MANY TESTS ARE DISCUSSED

R. H. Sweetser said that the base coke should have at least 89 per cent of fixed carbon as calculated on a dry basis, not over 3 per cent of moisture nor more than 1 per cent of sulphur. It should be dense but not hard and it should be free from breeze. The cokes needed for different heights of stack and for different kinds of pig iron vary. No physical test is satisfactory.

W. A. Selvig, of the American Society of Testing Materials, said that the shatter and porosity tests were fixed, the standards for rumbling and for weight per cubic foot were being considered. Size, moisture, ash, volatile matter and salt were other considerations.

W. B. Havens said that Perrott and Kinney had found that the shatter test gave the same results as the tumbler test so long as small material was excluded from the latter. The rumbler test was more rugged and simple. P. Nicholls said that it was better than the shatter standard. Light coke shatters less in the latter test, not because its strength is greater, but because owing to its light weight it does not collide so heavily. D. A. Russell said that in his opinion the sizing test was more important than that of the rumbler.

Mine Explosion

This explosion was, of course, staged for the occasion. The experimental mine at Bruceton, Pa., where this photograph was taken is an excellent place to demonstrate the explosibility of both gas and dust. Here the conditions encountered in many mines may be closely paralleled and the effects of mine explosions studied. How spectacular a mine explosion may appear is well illustrated by this photograph.

News Of the Industry

Northern Field Operators Mass Attack On Tidewater Adjustment from South; Western Maryland Ry. Urges Rate Cut

By Sydney A. Hale
Associate Editor, *Coal Age*

The second phase in the rate battle for control of the bituminous business of the Middle Atlantic and New England states was opened at New York last week before Interstate Commerce Commissioner J. B. Campbell and Examiner I. L. Koch. The hearings, which began on Oct. 6 and continued the rest of the week, centered around the reasonableness of the all-rail and tidewater rates from Pennsylvania, Maryland and northern West Virginia and the preference which Northern operators allege is shown to southern West Virginia. This week the Southern operators will have their innings.

Officially the proceedings held in the assembly room of the Merchants' Association are part of the investigation undertaken by the Commission in Docket No. 15006, *Rates on Anthracite Coal.* This inquiry was instituted in 1923 on the recommendation of the U. S. Coal Commission. The question of hard-coal rates, however, has been very much in the background ever since the time in Boston three years ago when New England interests, with F. R. Wadleigh, Former Fuel Distributor, as their star witness, advocated the establishment of joint through all-rail rates to the Northeast from southern West Virginia.

Certain rates on prepared sizes of low-volatile coal were ordered by the Commission a year ago. Because of the anthracite suspension the scope of the order was broadened to take in a number of emergency rates from other Southern fields, including the high-volatile districts of southern West Virginia and eastern Kentucky. Hearings were held in Atlantic City, N. J., several weeks ago, at which voluminous testimony on rates from these districts was presented. Spokesmen for the anthracite industry also were heard then.

The New York hearings, it was announced, would be confined to a consideration of evidence bearing upon the reasonableness and the alleged prejudicial character of all-rail and tidewater rates from the Northern fields, which ship tidewater coal to New York, Philadelphia and Baltimore, and on the tidewater rates from the Virginias and eastern Kentucky to Hampton Roads. While not ignoring the all-rail rates, Northern field operators have massed their attack upon the tidewater adjustment which gives the Pocahontas field a rate of $2.52 gross to Hampton Roads for a short-line haul of approximately 408 miles, as against $2.74 to New York from the Clearfield region for 328 to 378 miles, $2.25 for 232 miles from Cumberland-Piedmont to Baltimore and $2.32 for 280 miles from the Clearfield region to Philadelphia.

With the exception of the Western Maryland, all the railroads reaching the Northern ports have insisted that their present rates are just and reasonable and that differential relationships of long standing should not be disturbed. The Western Maryland, while denying its rates are too high, suggests that the spread between the Northern ports and Hampton Roads be narrowed 25c. per gross ton. The Southern carriers maintain that their costs are so much lower than those of the Northern routes that they can afford to operate on the existing basis.

O'Neill Armed with Exhibits

Charles O'Neill, secretary of the Central Pennsylvania Coal Producers' Association, opened the statistical presentation for the Northern operators with an elaborate set of exhibits comparing rates and ton-mile earnings between Atlantic seaboard and Lake Erie transshipping ports and between Southern and Northern tidewater piers. These were followed up with analyses of inland rates to show that the Northern fields paid higher relative rates than did competing operators in the Southern districts.

Continuing the discussion of tidewater business, Mr. O'Neill offered figures covering tidewater shipments for the first eight months of the year as compared with corresponding figures for 1924 and 1926. New York shipments to New England, he pointed out, had dropped from 674,634 net tons in the first eight months of 1924 to 521,285 tons in 1926; Philadelphia coastwise movement to New England from 324,587 to 233,345 tons, while Hampton Roads shipments had increased from 5,721,519 to 6,935,860 tons. During the first eight months of this year, added the witness, 1,694,273 gross tons was transshipped at Hampton Roads for points in and about New York harbor.

Benjamin Brooks, rate expert, submitted a series of comparative rate studies contrasting long-distance charges under the Holmes & Hallowell scale established by the Interstate Commerce Commission, rates from Illinois mines to Western Trunk Line points, from Montana to South Dakota, Ohio to the upper peninsula of Michigan and from southern West Virginia to the Southeast with rates from the Clearfield region to New England. The Clearfield rates, he observed, generally were higher despite more favorable traffic conditions. In cross-examination, Henry Wolf Bilklé, general attorney for the Pennsylvania R.R., sought to show that comparison of the rates cited with rates from the Clearfield region to Trunk Line territory would be more favorable to the Clearfield basis.

Charles F. Lamon, statistician for the Pennsylvania R.R., was the first defense witness, offering exhibits which stated that present earnings yielded less than a proper return on the railroad investment. He was followed by J. T. Carbine, coal traffic manager for the Pennsylvania western lines, who gave an extended history of the rate structure on eastbound coal. The first rates of record, he said, were fixed by the Baltimore & Ohio from the Georges Creek basin to Baltimore in the '50s. Since that time a rate relationship had been built up between competing fields and competing consuming centers so delicately adjusted that a change in one rate would threaten the existence of the entire rate structure. Even a cut of 10c. would mean a loss of $5,250,000 to $6,600,000 in the annual revenues of the Eastern railroads.

Buy Stock to End Rate War

The foundations for the current relationship, said Mr. Carbine, were laid in the early years of the present century when the New York Central and Pennsylvania purchased large blocks of stock in the Southern carriers to end a rate war which was threatening all the trunk lines with bankruptcy. The 25c. differential inside the capes, he explained at another point in his testimony, was put in so that industries taking water deliveries would be on the same cost basis as plants taking track delivery of coal.

During the course of Mr. Carbine's testimony Commissioner Campbell wanted to know whether some of the rate groups were not so large that they denied some points the benefits of the greater proximity to market. Was it the intent of Congress in passing section 15 (a) of the Transportation Act to require the Commission to institute a new scheme of rate-making and break

up some long-standing adjustments?

E. J. Berwind, president, Berwind-White Coal Mining Co., who testified on behalf of the Northern operators on Thursday afternoon, also went into the history of the rate war mentioned by Mr. Carbine. The first plan, after control of the Southern lines had been acquired, he said, was to make the same rate to all the ports, but that higher charges to New York had been agreed upon because at that time New York traffic could stand it. Between 1901 and the close of the World War practically no Southern coal had reached New York harbor. Since that time, however, arrangements had been made by certain large consumers to take 5,000 to 7,000-ton vessels and West Virginia was driving Pennsylvania out of the market.

Although he has large investments in southern West Virginia and eastern Kentucky, Mr. Berwind has refrained from developing those properties for the shipment of coal to New York because he believed that the present rate adjustment is economically unsound and must be changed. It was his opinion that a rate structure under which it cost more to ship coal from central Pennsylvania to New York than it did from southern West Virginia to Hampton Roads was fundamentally indefensible. The rates, he felt, should be substantially the same per ton mile. Variation in vessel rates, stressed by defense counsel, ought not, he stated, operate to deprive complainants of reasonable rates for the rail haul.

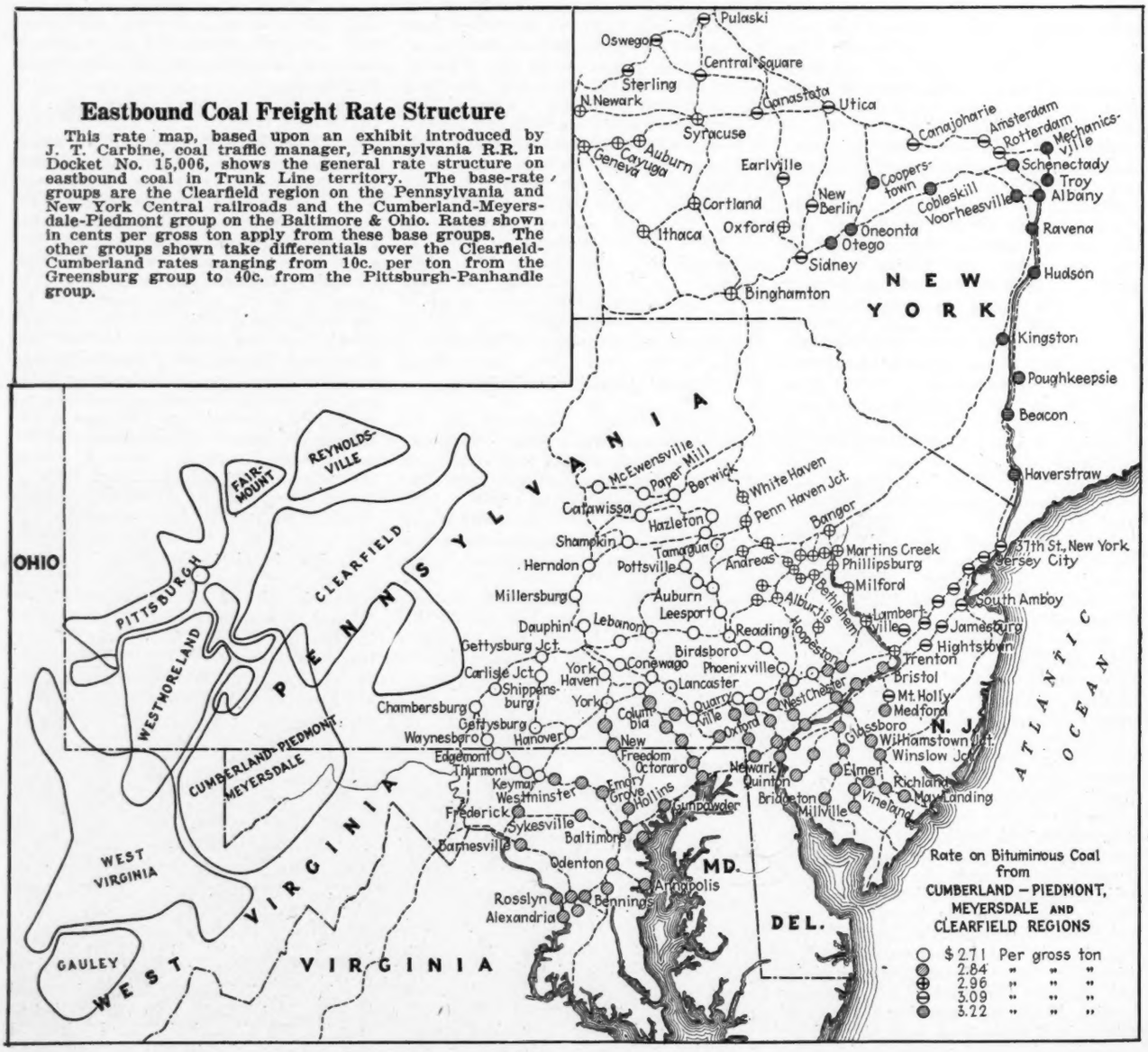
Explain Rate Adjustments

At the Friday morning session Alan McMichael, general coal freight agent, New York Central Lines-East, explained the coal rate structure on that system. Except at a few points where the Central did not meet short-line competition, the general basis was the same as that on the Pennsylvania. Physical operating conditions surrounding the coal traffic on the Baltimore & Ohio were explained by E. T. Van Horn, chief of yard and terminal operations, J. J. Ekin, controller of the Baltimore & Ohio, testified on the investment and returns from the facilities at Curtis Bay. C. H. Ashar, general coal freight agent, outlined rate adjustments on that line. In general, he explained, the B. & O. rate structure is the same as that of the Pennsylvania R.R.

A suggestion by E. L. McCaulley, assistant general freight agent, Western Maryland Ry., that the spread between Hampton Roads and the Northern ports be reduced 25c. provoked a sharp cross-examination by W. S. Bronson, general attorney, Chesapeake & Ohio Ry.

The witness admitted that he would prefer the adjustment to be made by increasing the Hampton Roads rates or by increasing rates to Hampton Roads 12.5c. and reducing rates to the Northern ports the same amount. If necessary, however, he was ready to suggest that a flat reduction of 25c. be made in the rates to the northern ports.

Gerritt Fort, vice-president, Boston & Maine R.R., asserted that there had been no complaint made against New England rates and that the cost of coal was relatively unimportant to most New England manufacturers. F. P. Kinney, general freight agent, New York, New Haven & Hartford R.R., gave the history of coal rates on that road. J. L. Dempsey, assistant freight agent, Central Vermont Ry., was heard briefly on rates on his road.



Britain's Coal Trade Menaced by Franco-German Iron-Steel Accord Is Belief of Washington Officials

By Paul Wooton
Washington Correspondent of *Coal Age*

Europe's coal trade is profoundly affected by the Franco-German iron and steel accord. It gives new proof that the coking coal of the Ruhr is a vital essential to the French iron and steel industry. The accord has a deeper significance to coal than the increased consumption of Ruhr coal that it assures. If European nations can act together in this instance they can act together in others. It gives rise to the thought that it may make easier some agreement between Germany and England with regard to coal.

Washington attaches great significance to this trend of industrial policies in Europe. The accords that have been made and those that are being discussed indicate that this method of effecting economies and getting industries on a basis of mass production meets with favor among conservative European business men. If commercial agreements of this character are possible it is not inconceivable that a tariff union might follow. This would give the European manufacturer the stabilizing advantages of a larger "home" market. So keen an observer as Robert Brookings has remarked that the removal of the customs barriers between the European countries would do more than any other one thing to stimulate economic recovery there.

Some in Washington regard the iron and steel agreement as more important than the Locarno treaty. It is taken to indicate that reconciliation between France and Germany has gone further than had been suspected.

One Source of Friction Removed

The iron ore of Lorraine and the coal of the Ruhr formed a national economic complement when Germany held Alsace-Lorraine. The war and the peace treaty wrenched apart the economic as well as the political system. The French found themselves possessed of a doubtful asset in the ore without the coal. The new cartel restores harmony and the single economic system and removes a serious cause of friction between the two countries. While this is not the first step, it is the longest stride yet made toward international economic co-operation.

The United States has nothing to fear from the steel combine, it is believed, since it is a defensive arrangement intended to raise and stabilize prices. It is not aimed at the American market. Moreover, our steel companies have more to gain, directly and indirectly, from stabilization in Europe than they could lose through increased sales of steel by the new cartel.

The combine, however, is a real menace to the British industry. The iron ores and coal of the British Isles form an economic system comparable to the Ruhr-Lorraine or the Pittsburgh-Lake Superior systems. Although the first to develop, the British industry has been outstripped by its competitors. It now will face even more severe competition as Lorraine and the Ruhr again have been joined economically. British individualism remains too strong to accept co-operative schemes even when there is little doubt that they would be highly profitable. The chemical accord proposed by the Germans was rejected. The proposed co-operation in the coal trade met with no greater favor and now the same attitude is shown when the chance was had to join with the Continental steel makers.

Stabilization Is Aim

Cartels such as the steel makers have formed are not regarded in Washington as being nearly so objectionable as the controls which governments occasionally try to foist upon the consumers of other countries.

The policies of the steel combination are not yet known, but apparently the purpose of the undertaking is to increase prices to the point where they will stabilize the business. This will help rather than hurt our foreign trade. It is thought that there will be no attempt to lower prices, but if that is done it will mean a price war with American and British producers—a move which the new cartel is not at all likely to try.

Privately controlled combines have, at least, the advantage of better management than those in government hands. Had the rubber control been private the mistake of allowing restriction of production to go as far as it did would not have been made.

EDITOR'S NOTE.—*The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and* COAL AGE *editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.*

The Consolidation Coal Co. will pay one and possibly two dividends on its preferred stock this year, according to a Baltimore dispatch to the *Wall Street Journal*. "C. W. Watson, president, and other officials of the company," the dispatch adds, "decline to discuss dividend prospects in advance of action by directors, but from other sources it is learned that funds required to pay the dividends already have been earned and directors favor making at least one distribution.

Mississippi Barge Line Now in Operation

A string of barges operated by the Standard Unit Navigation Co., of St. Louis, Mo., came up the Illinois River early in September on their maiden trip to Chicago. These barges will operate in 18 to 20 in. of water, giving them considerable advantage over the old fashioned steamboats which required from 4 to 6 ft. This new system, known as the Sunco, will operate in all rivers tributary to the Mississippi, which includes the Missouri, Illinois, Arkansas, Wabash, Ohio, Tennessee, Cumberland, Warrior, Ouachita, Alabama, Tombigbee, Yazoo, Red and White. The boat which made the maiden trip up the Illinois was the Sunco A2. The company will do a general freight business, specializing in coal, grain, hay and other bulky commodities.

Schwab Heads A.S.M.E.

Charles M. Schwab, chairman of the board of the Bethlehem Steel Corporation, has been elected president of the American Society of Mechanical Engineers for the coming year. Mr. Schwab was elected an honorary member of the society in 1918 as a recognition of his great part in the upbuilding of the steel industry and his ability as an industrialist, a financier and an organizer of men. Mr. Schwab will formally assume his new office at the annual meeting of the society in New York early in December, at which time he will succeed William L. Abbott, of Chicago. Other new officers elected were as follows: Vice-presidents, Charles L. Newcomb, manager of the Deane works of the Worthington Pump & Machinery Corp. at Holyoke, Mass.; Everett O. Eastwood, professor of mechanical engineering at the University of Washington, Seattle, Wash., and Edwards R. Fish, vice-president of the Heine Boiler Co., St. Louis, Mo.

Members of Council, Col. Paul Doty, of St. Paul; Ralph E. Flanders, of Springfield, Vt., and Conrad N. Lauer, of Philadelphia.

Erik Oberg, editor of *Machinery*, New York City, was re-elected treasurer of the society. Mr. Oberg succeeded to this office upon the death of Major William H. Wiley in May, 1925.

Railway Fuel Costs Decline

Class 1 railroads of the United States consumed 7,635,174 net tons of coal in train locomotives during July, 1926, according to a monthly report by the Interstate Commerce Commission. This was an increase of 256,596 tons over the total for the corresponding month of 1925. The average cost per net ton, including freight, of such fuel in July last was: Eastern district, $2.58; Southern district, $2.13; Western district, $2.95; United States, $2.58. The difference in the average for the United States as a whole from the preceding month was $0.03 decrease, and from July, 1925, $0.09 decrease.

Illinois Mines Seek Uniform Differential on Fine Coal

Illinois operators asked for some uniformity of practice and tariff description on screenings to Western points at a three-day hearing before the Interstate Commerce Commission at the Great Northern Hotel, Chicago, Oct. 4, 5 and 6.

Three cases were involved—two filed by the Illinois Coal Traffic Bureau and one by the Old Ben Coal Corporation. A large number of representatives of the producers in Illinois, the West and Southwest and the railroads were present.

Illinois carriers were nominally opposed to any rate reductions as recommended by the complainants while Western and Southwestern operators as well as railroads actively contested any changes.

Western and Southwestern operators pleaded that their coal was more friable than Illinois coal and that therefore they should enjoy on the nut size a freight rate the same as that applying on screenings in the consuming territory under consideration from Illinois mines. The differential is approximately $1 a ton.

The hearing was held before Examiner Lawrence Satterfield. The Illinois Coal Traffic Bureau was represented by R. W. Ropiequet, W. Y. Wildman and Dr. F. C. Honnold. Thomas Phillips and C. E. Warner were present for the Southwest Coal Operators' Association. The Colorado Operators' Association was represented by Albert Vogel and F. E. Sandstrom and the Southern Wyoming Operators by George Bell.

Points at Issue Cited

The main points at issue as presented by the Illinois operators were:

A part of the total volume of coal as it is raised, however prepared, is at all times a pure byproduct so far as sale is concerned and never returns cost of production. Roughly, this portion is 2-in. screenings (or nut), pea and slack, production of which has increased steadily in the last several years.

Because of the situation numerous operators in all the producing fields sought to increase the number of prepared sizes or combinations offered to customers for whose requirements the sizes seemed especially adaptable. Smaller sizes—stove, chestnut, pea and the residue (called Carbon, or No. 5) are being made.

At first some benefit in return was realized. Today the only benefit is the ability to offer coal more adapted to certain needs and to guarantee disposition of the total increased volume of byproduct instead of having to waste or dump it on the ground as a total loss.

Operators of Wyoming, Colorado, New Mexico and the Southwest have made similar effort to provide special sizes and to establish trade custom and demand therefor. Their success in this particular, according to Illinois operators, seems to have been based less on the price of the product than on the favoring applicable freight rates thereon.

"During a period of years there has gradually developed in the consuming territory under consideration," said Dr. F. C. Honnold of the Honnold Coal Bureau, Chicago, "a substantial movement of these special preparations of coal from producing districts west of the Mississippi River and south of the Missouri River that is definitely prejudicial to Illinois coal operators by reason of the preferential rates enjoyed by its competitors.

"We refer particularly to the movement of various sizes of so-called nut coal, in some instances on the basis of the applicable rate for screenings and in other instances at a rate somewhere between that applicable to screenings and that charged for the movement of lump and egg."

Heavy Taxing of Hard Coal Unjust, Says Edmonds

Anthracite is the most heavily taxed industry in Pennsylvania, and the most unjustly taxed, according to Franklin Spencer Edmonds, who made this assertion in a recent address before the Philadelphia Bond Club. Mr. Edmonds, who is an attorney in Philadelphia, is a former member of the Legislature, is chairman of the Pennsylvania Tax Commission appointed by the General Assembly, and is leader of the Philadelphia Chamber of Commerce committee on taxation.

"Something should be done," said Mr. Edmonds, "to relieve coal producers from the excessive burden of taxation, which is not entirely due to state laws, but to a large extent to increasing local assessments on coal lands."

Mr. Edmonds said that the Tax Commission was inclined to favor taxing net incomes of all corporations in lieu of present taxes as the most equitable plan. "Under such a plan," he said, "the state would collect a tax when there was a profit on the year's business, but would get no tax when the enterprise failed to produce a profit."

Fourth Coronado Trial On

The fourth trial of the famous Coronado Coal Co.'s suit against the United Mine Workers has been opened in the federal court at Fort Smith, Ark., before Judge Joseph W. Molyneau, of Minnesota. Judge Frank A Youmans of the Western Arkansas federal district, has disqualified himself.

Clyde H. Finly, of Poteau, plaintiff, who was named receiver of the Coronado and other coal companies in the case after the destruction of the company's property during labor troubles in the Hartford valley in the spring and summer of 1914, resulting in the filing of the suit, is present at the trial. Franklin Bache, Philadelphia, Pa., who was president of the company, also is on hand.

Judgment for approximately $2,000,000 is sought.

Mine Wage Cut Fades in Ohio As Trade Picks Up

With the gradual increase in operating in all of the Ohio producing fields the likelihood that any effort will be made to operate mines on the scale recently approved by the special scale committee of the Ohio Coal Operators' Association becomes more remote. This scale was similar in many respects to that commonly referred to as the scale of 1917, except that some concessions were made in the way of eliminating fractions in the cutting and loading rates.

When the scale was adopted indications pointed to some effort to put the scale in force as there was not much demand for the product of Ohio coal fields. With the stronger demand for tidewater shipments, the increasing domestic trade and the rush at the end of the lake season, conditions have changed to a large extent and many of the mines in the southern Ohio field as well as in other Ohio producing regions have resumed on the Jacksonville scale.

Now it is planned by leaders in the association to use the scale as a basis of negotiation when it comes time to bargain for a new scale with the miners. The Jacksonville scale expires April 1, 1927, and prior to that time the machinery to negotiate a new scale will be placed in motion.

Leading operators of Ohio still insist that they will not join with operators of Indiana, Illinois and Pennsylvania in negotiating a scale for what is commonly known as the Central Competitive Field. They will insist that Ohio operators treat and agree as a state instead of by the four-state plan.

Revival of Southwest Mines Seen Under New Union

Practically all of the coal mines of Missouri, Arkansas, Kansas and Missouri will be operating within a year under an independent organization, President H. Medlin of the Interstate Brotherhood of Miners predicts.

"Many of the mines in Arkansas and Missouri are already operating," says Medlin, "and as soon as we have enough men we have assurance that the owners of the large plants at Bevier will treat with us in the making of a scale.

"In Arkansas there is an organization known as the Mine Workers' Union of the Southwest with headquarters at Bonanza. It will have delegates at the convention we are planning in Missouri in the near future. The purpose will be to get all the organization of miners west of the Mississippi into one organization for united action.

"Almost daily headquarters are receiving communications from miners in other states who are ready to come back home when assured of work. The more such letters we get the quicker we will be able to meet with the large mine owners and arrange a scale. It will take between 8,000 and 10,000 men to man all the coal mines in Missouri. The consumption of coal in Missouri will furnish employment for an even greater force, if all Missouri railroads will use Missouri coal."

Baldwin-Churchill Peace Program Rejected by Striking British Miners; Withdrawal of Safety Men Threatened

The campaign of disintegration which has been slowly undermining the strength of the coal strike in the United Kingdom is promised a clear field for operation by the latest developments in the British situation. As forecast in the preceding issue of *Coal Age*, the Baldwin-Churchill peace program has been overwhelmingly rejected by the delegates of the British Miners' Federation and the government again is out of the picture.

The Federation, acting on the recommendation of the delegates from South Wales, has voted in favor of withdrawing the safety men who have continued at work since the strike began last May. The vote on the resolution was 594,000 to 194,000. Inasmuch as the safety men are not members of the Federation, this vote must be regarded as an empty—if desperate—gesture by "Emperor" A. J. Cook, general secretary of the Federation, and his associates.

The executive council of the National Federation of Colliery Enginemen, Boilermen and Mechanics, with which the majority of the safety workers is affiliated, held a meeting at London last Friday and decided to ignore the recommendation of the Miners' Federation. On top of this, the government has let it be known that if the safety men desert their posts and civilian volunteers can not be found to take their places, naval and military units will be called upon to protect the mines.

Hodges Censures Cook

In the meantime, the policies of the executives of the Miners' Federation are meeting with sharper criticism from men actively identified with the cause of labor. Frank Hodges, secretary of the Miners' International Federation, again publicly attacked Cook in a statement Saturday. Expulsion of Federation members who have assisted in arranging for the return of workers to the mines leaves the expelled delegates bellicose and unrepentant. The railwaymen, whose assistance was sought to enforce an embargo on coal imports, are deaf to the British Miners' Federation pleas. Other unions are sour to the request for financial levies on their members.

G. Spencer, a member of Parliament and one of the executives expelled for his part in arranging for the return of men in the Nottinghamshire district, declared that he had acted at the request of the miners who were threatened with the permanent loss of their employment. "If I lose my job in the miners' movement or in Parliament over this," he said, "I shall not regret my action. I shall regard it as the best day's work for the men I have ever done."

Even Cook has been forced to disavow this demand by the violent and hostile public reaction to the announcement of the proposal. In a statement Sunday, the "Emperor" alleged that the Federation was emphatically opposed to the withdrawal of the safety men and would appeal to the miners in the different districts to vote against the proposal.

The rejection of the Baldwin-Churchill program for district settlements in a national framework was by a vote of 737,000 to 42,000, according to the British Miners' Federation. Prior to the meeting last Thursday at which this decision was announced, the Federation had been warned in a letter from the private secretary to Premier Baldwin that the government could not hold open its proposals indefinitely. If they were rejected by the union, they would be withdrawn.

The government program which the Federation turned down called for a general resumption of work under provisional district agreements. These agreements were to be made with the understanding that the government would introduce a bill to set up a National Arbitration Tribunal to review these settlements and to lay down principles of national scope.

The final collapse of the latest peace parleys has accelerated the return of workers to the pits. At the close of last week it was estimated that 203,000 men had abandoned their leaders and had returned to work under such terms as could be made with the colliery proprietors. This was an increase of 39,000 workers in a week.

The first clear-cut break in the ranks of the Federation came over the week-end when the Leicestershire Miners' Council voted to call off the strike in its district and urge the men to return to work. Other county associations, it is predicted, will follow the lead of the Leicestershire body. As soon as the announcement was made long queues of miners formed at the pit offices, waiting to sign up on an eight-hour day.

Kansas Industrial Court To Get Acid Test

The constitutionality of the act creating the Kansas Court of Industrial Relations hangs in the balance in the case of August Dorchy, plaintiff in error, vs. the State of Kansas, defendant in error, now before the United States Supreme Court. The question at issue is whether a conviction and sentence under the Industrial Court act, the alleged offense consisting of calling a strike in a coal mine, is a violation of the "due process" clause of the Constitution.

It is shown by the facts in the case that August Dorchy, while acting as an official of the Kansas miners' union, called a strike in a coal mine, for which he was arrested, convicted and sentenced to serve six months in jail and to pay a fine of $500. The conviction was for a violation of the Court of Industrial Relations Act. The Kansas Supreme Court affirmed the conviction.

The evidence proved that the strike was called because a coal company refused to pay one of its workmen money found to be due by the joint board of miners and operators.

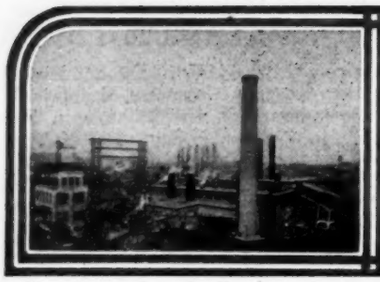
The plaintiff in error contends that the judgment of the court and the statute are unconstitutional, as contrary to the "due process" clause of the Fourteenth Amendment. He claims that mining is not clothed with a public interest, that compulsory arbitration is unconstitutional and does not apply in the coal mines of Kansas, and that the Court of Industrial Relations act is unconstitutional.

The defendant in error contends that the action of Dorchy was to coerce the coal company to pay a money claim asserted to have been due a former employee, and that such strike is not lawful under former decisions.

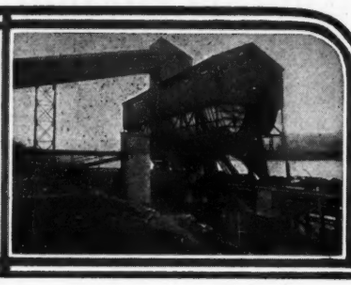
The state further contends that the question of punishing anyone who calls a strike is one of public policy and within the power of the state to decide, and that it is well within the power of the state to protect its coal supply, and within its police power to punish those who interfere with such supply.

When Miners Refuse to Produce Coal, Peat Still Remains

The Thompsons of the famous Chequers Inn, near Osmotherley of the Cleveland Moors, England, have burned peat in a remarkable old fireplace in the inn kitchen for one or two hundred years. Some claim this to be the oldest peat fire in England. Here is a big stack of the fuel.



News Items From Field and Trade



COLORADO

Bear River Mine Sold.—The Bear River mine in Routt County, near Steamboat Springs, has been sold by P. M. Peltier to the Fraker Coal Co. for a reported consideration of $375,000. The Fraker Co., which formerly had interests in Iowa, has been running the Bear Creek mine for the past year. Mr. Peltier, who is one of the largest individual operators in the state, retains his control of the Centennial lignite mine at Roseville and the Boulder Valley lignite mine near Boulder.

New officers of the Canon Reliance Coal Co., operating mines in the Canon City district, include Robert E. Gross, vice-president and treasurer, who is the son of Robert H. Gross, president of the New River Company of West Virginia. H. H. Pinkney is vice-president and general manager, and Robert Wicks, assistant treasurer and secretary, with headquarters at Canon City.

DISTRICT OF COLUMBIA

Announcement has been made that control of the J. Maury Dove Coal Co., established at Washington, D. C., over 70 years ago, has been sold to the American Ice Co. of New York. The Dove company, however, will continue to operate under its old name, with J. Maury Dove, Jr., as president, and Wallace D. Blick as vice-president.

ILLINOIS

Old Ben Opens Idle Mine.—Mine No. 12 of the Old Ben Coal Corporation, near Buckner, has resumed operations after a complete shutdown for the summer months. The mine was one of the chain of ten which the Old Ben concern closed early last spring and the opening of the shaft came as a surprise. About 600 men are employed.

The Druley-O'Brien Co., Chicago coal dealers, are issuing a certificate of guarantee with each ton of coal sold as a protection to the customer against misrepresentation. The certificate binds the company to remove the coal without cost if found not as represented. It is a form of buying coal on approval such as has been practiced by the Consumers Co. in Chicago for several years.

Bondholders Buy Standard Mines.—The properties of the Standard Coal & Coke Corporation, including the Scranton and Orchard mines, have been sold for the sum of $100,987 to a committee representing the bondholders, who expect to operate the mines as soon as they can be placed in shape. The mines have been steady producers for many years and a year ago were purchased by the Standard Coal & Coke Corporation, which planned to add other properties to its holdings and make the company one of the big coal producing companies of the state. The Orchard shaft was closed down and plans were made to operate that property through the Scranton mine and after considerable preliminary work the Scranton mine was started. The company was not able to complete the financing of the proposition however, and after operating but one week the mine was closed down. Later the company was thrown into bankruptcy.

Belleville Mines Reopen.—The Ell-Rich Mining Co. has reopened its mine at Belleville after a shutdown of nearly a year. Fifty men started work, but a full quota of 112 men will be in service at once. This is the third mine in the district to open after a year's idleness. The other mines now operating are the Shiloh mine of the Southern Coal & Mining Co. and the Victoria Coal Co.

Fox Hughes, of Herrin, has resigned as president of the 10th Miners' Subdistrict to accept an appointment as state executive board member of the 12th district. Hughes succeeds Senator W. J. Sneed, of Herrin, who recently was appointed district vice-president, following his withdrawal as a candidate for the presidency of the Illinois miners' union.

The Illinois Miners' Examining Board will meet Oct. 14 at West Frankfort; Oct. 15, Duquoin; Oct. 16, Centralia; Oct. 18, Staunton; Oct. 19, Springfield; Oct. 20, Taylorville; Oct. 21, Danville; Oct. 22, La Salle, and Oct. 23, Peoria.

The Saline County Coal Corporation's Mine No. 2, four miles south of Harrisburg, resumed operations on Oct. 4 after having been idle for nine months. It employs 350. Two other mines in the Harrisburg district are likely to start up about Oct. 15.

Better Days for St. Clair.—A general reopening of the coal mines in St. Clair County, is in progress. The latest to resume is the Shiloh mine of the Southern Coal, Coke & Mining Co. near Belleville. The D. B. mine of the Victoria Coal Co. also has reopened. Within 30 days the Southern company expects to employ 1,200 to 1,500 miners in its Shiloh, New Baden and Marine mines according to William K. Kavanaugh, president and general manager. Of the 84 mines in the Belleville subdistrict of the Illinois union 58 have been closed through the summer, while the remaining mines have averaged but 54 per cent operation. Approximately 6,000 St. Clair County workers have been out of work most of the summer months.

INDIANA

Gus Mandabach, 46 years old, one of the three owners of the Domestic Coal mine at Washington, was instantly killed Sept. 25 when he was caught in a fall of slate in the mine, when he had gone into one of the entries to make an inspection. A brother was killed in the same mine several years ago.

Several buildings at the Frank Ryan mine, on the Ownesboro road two miles southeast of Boonville, were destroyed by fire recently, but the tipple was saved. Rebuilding will start at once.

Improvements at the Stock coal mine at Chandler have been completed and the mine now is in full operation and is shipping considerable coal. A new switch has been laid from the Evansville and Boonville traction line to the mine, on the Owensboro road two miles longing to Orion S. Meeks, of Evansville, and Charles W. Cook, ice manufacturer of Evansville, is one of the mine owners.

KENTUCKY

Predicts New Output Record.—Kentucky's coal mines will produce approximately 60,000,000 tons of coal this year, the largest amount ever mined in the state, according to a statement by W. P. Jones, chief inspector of mines for Kentucky, who is again in his office at the University of Kentucky after making extensive surveys. Last year's output, 55,000,000 tons, set a new record.

The Bowling Coal Mining Co. of Harlan, has changed its name to Bards Coal Mining Co.

It recently became known in Louisville that Frank Ambach, president, and W. B. Talbott, secretary-treasurer of the Phoenix Fuel Co., jobbers, with offices in the Starks Building, had sold their interests in the company to S. D. McLaren, the vice-president, who obtained all outstanding stock which he did not hold. The company was formed about seven years ago, when Ambach left the Dixie Fuel Co. McLaren joined the concern about four years ago, after a number of years with the Harlan Coal Co., Louisville.

A large force of men is at work cleaning the interior and repairing the tipple of the Arnold mine, at Earlington, preparatory to a resumption of mining operations.

MASSACHUSETTS

B. & M. Ties to Island Creek.—The Boston & Maine R.R. closed a contract last week with C. H. Sprague & Sons.

Co., of Boston, for its entire tidewater coal requirements for the next four years on Island Creek Coal Co.'s product. This involves about 4,000,000 tons, as the railroad's consumption of tidewater coal is now about 900,000 tons annually. This is in line with the option given the railroad a year ago when it purchased its coal for the current year. The price is understood to be on a sliding scale so that the shipper is protected against any large break in price and the buyer against any marked rise. Shipments on the new contract will start April 1, 1927.

NEW YORK

Glen Alden Acquires Control.—According to reports in financial circles in lower New York, the Glen Alden Coal Co. has acquired practically all the stock of the Delaware, Lackawanna & Western Coal Co., sales agent for the output of the Glen Alden mines. The sales company has paid $8.75 a share in dividends in the current year and one more payment remains to be made on Dec. 15. It is understood that $2.50 a share will be paid at that time and quarterly thereafter to correspond with the 10 per cent dividend of the Glen Alden, whose stock was exchanged share for share with the sales company last year. The latter has changed its dividend date, and payments are now made in March, June, September and December instead of in January, April, July and October.

OHIO

Large Operations Start.—More mines are being opened in the southern Ohio field as a result of the stronger demand for coal from all fields which has developed in the past few weeks. The Sunday Creek Coal Co. has opened the Burr Oak mine, near Congo, which it acquired by purchase from the Mid Hocking Coal Co., about a year ago. This mine is equipped with modern machinery but has not been operated for three years. This makes six large mines, in addition to a number of smaller ones now operated by the Sunday Creek Co. The Ohio Colleries Co. has started operations at Mine No. 281, at Modoc, giving employment to more than 200 men. The General Hocking Fuel Co. has resumed operations at Mine No. 10, at Orbison, which had been idle for months. All these are large operations.

PENNSYLVANIA

Two New Mines Nearly Ready.—By Nov. 1 or shortly after the Jones & Laughlin Steel Co. hopes to begin the shipment of coal from two of the four mines to be operated at Taylortown. The coal is to be shipped down the Monongahela River in barges to the steel plants of the company in the Pittsburgh district. When operating at normal capacity the mines will be able to produce about 12,000 tons a day for river shipment. It is proposed to drive five headings at each of the mine openings into the Pittsburgh seam of coal, which has an average thickness of 9 ft. at the point of operation. A system of barge docks is being constructed on the Monongahela River about three miles from Taylortown between the mouth of Dunkard Creek and the Poland No. 3 mine. A trolley system is being installed to haul the coal from the mines to the river. It is proposed to double-track the line leading to the pier loading point.

The Acme mine of the Bethlehem Mines Corporation, at Bentleyville, Pa., has resumed mining after being closed down for almost two years. Six hundred men will be employed at the mine when it reaches capacity operation.

Output Increases. — The Pittsburgh Coal Co. reports that the operation of the 12 open-shop mines in the Pittsburgh district in September was at a higher rate than in August. In September, 285,714 tons were produced at an average of 11,429 tons per working day, while in August production was 295,226 tons, or an average of 11,355 tons per working day. All the mines worked every day.

Thirty ovens have been started at the Derry No. 1 plant of the Latrobe-Connellsville Coal & Coke Company, Bradenville. Additional ovens will be fired.

Although Governor Pinchot has referred several times recently to the filling of vacancies on the anthracite examining board no action has yet been taken. The executive has had an unusual number of county offices to fill because of deaths, and delegations are waiting upon him constantly.

Lindsey mine No. 8 of the Lindsey Coal Mining Co., near Punxsutawney, which had been idle since May, resumed recently, employing about 100 men. On Oct. 1 wages were adjusted to the 1917 scale.

WASHINGTON

Operators Entertain Barnum and Gandy.—Washington state coal operators were hosts at a luncheon at the Arctic Club in Seattle, Sept. 29, to Walter Barnum, president, and Harry L. Gandy, executive secretary, of the National Coal Association. Practically all producing companies in the state were represented. In his remarks Mr. Barnum stressed the necessity for the National, mentioned some of the accomplishments of the association and felicitated Washington operators on having steadfastly supported the association since its organization. Mr. Gandy reviewed National activities, past and present, and urged operators not only to maintain a closer relationship with the association offices but to feel free at all times to call on the association staff for such services as it may be able to render.

WEST VIRGINIA

Scotts Run More Active.—Increasing activity in the Scotts Run field of Monongalia County is reflected in the reopening of the Crest mine, owned by the Higgins estate, located near the Bunker mine. The mine will have a capacity of about five cars a day when operations reach normal proportions. Between 40 and 50 men are being employed. Resumption of operations at the Crest mine brings the total number of active plants in the Scotts Run and Maidsville districts to twenty-six.

Takes Over Hudson Mine.—The Valley Coal Co., a Delaware corporation, has acquired the Hudson Coal Co. property at Wolf Summit, in northern West Virginia, from the Wentz Corporation of Philadelphia. The latter purchased the property some time ago for $340,000 at a court sale. The property consists of about 1,000 acres of Pittsburgh vein coal and 100 acres of surface with an up-to-date mining plant. When running full the mine gives employment to between 200 and 300 miners.

Blames Foolish Investments. — Discussing various phases of the coal industy before the Kiwanis Club of Fairmont, on Sept. 28, George S. Brackett, chief statistician of the Consolidation Coal Co., asserted that the principal trouble was foolish investment. When a chain store organization proposed to establish a store in a certain place, it always analyzed the market and estimated the actual need of a store in that locality. Many men become imbued with the idea that they could make money in coal and at once start a mine with no thought as to the cost or the market for the product. It was stated by Mr. Brackett in the course of his address that there should be some encouragement in the fact that this year probably would find the Fairmont field producing 30,000,000 tons, an increase of 15 per cent over any previous year.

Bramwell from Pinnacle Rock

Bramwell is the financial center of the Pocahontas Region. This scene taken from a perilous position on Pinnacle Rock, an outstanding feature of the district shows in the foreground the bloom of a chestnut tree which has somehow found root in that landmark.

Among the Coal Men

J. T. Cartwright, formerly general superintendent of the Scranton Coal Co., Scranton, Pa., has been appointed to the newly created position of supervisor of compensation, effective Oct. 1. He has been with the company for twelve years. **Joseph Mayer** succeeds Mr. Cartwright as general superintendent. **Earl Lamb** has been named as assistant to the general superintendent, this also being a newly created post. Until several years ago Mr. Mayer and Mr. Lamb were employees of the Hudson Coal Co.

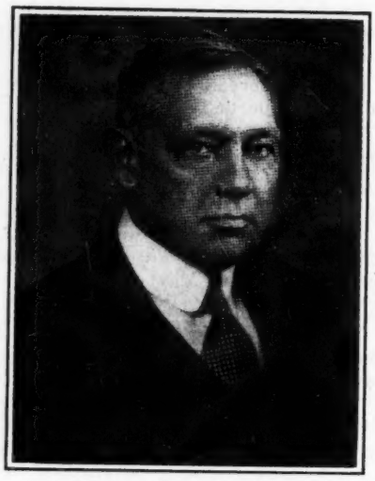
Enoch Carver, Jr., has resigned as president of Cosgrove & Co., Chicago. He has asked to be relieved as quickly as possible and gives no reason for his resignation except to say he is intent on taking an extended vacation at Green Lake, Wis., where he has a country home. Mr. Carver has disposed of a portion of his holdings in the company. He was elected president two years ago after being vice-president for ten years. Mr. Carver is a product of the coal business. He was born in West Virginia in the heart of the coal-mining region and at one time was the Northwestern sales agent in Chicago for the New River Coal Co. **C. R. Campbell**, vice-president, will immediately assume charge of sales in the West.

F. F. Jorgensen has resigned as general superintendent of the Superior Coal Co., Gillespie, Ill., and will join the forces of the Consolidation Coal Co. at Fairmont, W. Va., as assistant to the general manager of the West Virginia division. In recognition of Mr. Jorgensen's able services the official family of the Superior company held a dinner and wished him success on the eve of his departure. **D. D. Wilcox** will succeed Mr. Jorgensen as general superintendent of the Superior operations at Gillespie as well as in Iowa. **Paul McCorkle** has been promoted from assistant engineer to chief mining engineer. **Roy Kentfield**, who formerly was master mechanic of the Superior company, has been promoted to master mechanic of the Northwestern coal properties. **James Powell**, who formerly was assistant superintendent, will be superintendent.

Thomas G. Fear, of Indianola, Allegheny County, Pa., has resigned as general superintendent of the Inland Collieries Co., at that place, effective Oct. 1, to accept a position at Fairmont, W. Va., with the Consolidation Coal Co. He will be engineer in charge of safety and underground transportation, under R. L. Melendy, director of engineering. Mr. Fear is a graduate of Lehigh University, and spent several years with the Tennessee Coal, Iron & Railroad Co. in Alabama and Tennessee before becoming associated with the Inland company about nine years ago.

T. W. Lewis, purchasing agent for the United States Fuel Co., Hiawatha, Utah, was elected recently to fill an unexpired term on the Carbon County (Utah) Board of Education.

Obituary



The Late C. E. Hutchinson

A conspicuous figure in the coal industry of West Virginia passed on when Clyde E. Hutchinson suddenly succumbed to heart disease, as announced in *Coal Age* last week. He had opened and developed many mines in various sections of the state during the last thirty-five years.

William Milo Barnum, chairman of the board of directors and formerly president of the Pacific Coast Co., of which the Pacific Coast Coal Co., Seattle, Wash., is a subsidiary, died at Roosevelt Hospital, New York City, Oct. 5, in his 71st year. He was born in Lime Rock, Conn., the son of William H. and Charlotte Burrall Barnum. His father had been a United States Senator and had served as Chairman of the National Democratic Committee in the campaigns of 1880 and 1884. Mr. Barnum was graduated from Yale in 1877 and from Columbia University Law School in 1879. He practiced law for a number of years and was a member of the banking firm of Harvey Fisk & Sons. He abandoned his law practice in 1904 to devote his time to commercial activities as president of the Pacific Coast Co. Funeral service was held at 10 a.m. Oct. 7 at St. Thomas' Church on Fifth Avenue, New York City. Walter Barnum, president of the National Coal Association and of the Pacific Coast Co., is a son of the deceased.

John McKay, who for many years was secretary-treasurer of the Dominion Coal Co., Ltd., Glace Bay, N. S., died Oct. 8 at Montreal General Hospital following a paralytic stroke. Born in Scotland, Mr. McKay emigrated to the United States and became manager of the New York brokerage firm of E. C. Benedict. Returning to Scotland, he was persuaded to return by the late James Ross, president of the Dominion Coal Co., who made him secretary-treasurer of the company.

W. A. Holley, vice-president and treasurer of the Phoenix Coal & Coke Co., Chicago, died Oct. 5 from heart trouble. He was 51 years old and for fifteen years was coal freight agent in Chicago for the Chicago, Burlington & Quincy R.R. Funeral services were held Oct. 8. Interment was at Mt. Carmel Cemetery, Chicago.

Henry H. Eastman, 54, treasurer of the Hercules Powder Co., Wilmington, Del., died last week from complications caused by swallowing a chicken bone.

Traffic News

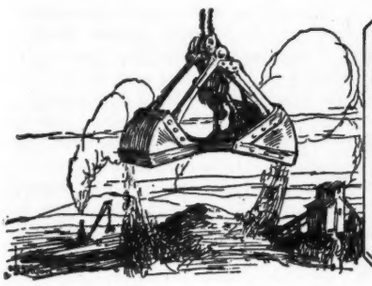
Refuses to Reduce Eastern Rates To Points in Indiana

Reductions in rates on bituminous coal from Ohio and Inner Crescent points to stations in Indiana have been refused by the Interstate Commerce Commission in *Indiana State Chamber of Commerce vs. Ann Arbor R.R. Co. et al.* The opinion in this case, written by Commissioner Taylor and recently released in mimeographed form, finds the existing rates neither unreasonable nor unduly prejudicial as compared with rates to western Ohio, southern Michigan and Illinois.

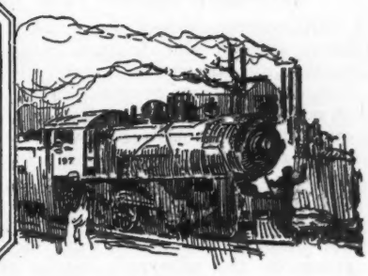
Existing rate groups and relationships, says the decision, have been long maintained. They are "presumably fair and not to be disrupted unless substantial justice requires it." The complainant insisted that the grouping of destinations in this case "has been based on considerations affecting coal producers and carriers without due regard to the interests of the consumer, but examination of the reports in cases cited will show that the latter have not been lost sight of. In our opinion, the record does not warrant a disturbance of the present adjustment of rates on coal from and to the points herein considered."

To the objections of Illinois and Indiana producers that a reduction in rates from the Crescent mines would further reduce the output from Illinois and Indiana, the Commission declares that the record shows that the Crescent coals are more desirable for certain purposes than those mined in Indiana and Illinois and that the former are produced at a less cost. In a time of depression such as has prevailed in the entire coal industry in the past few years, it is self-evident that mines producing a less desirable product at a higher cost will first feel the effect of the depression and be forced to close down or restrict their operations. Complainant contends that such considerations should be disregarded in determining the propriety of rates from the Inner Crescent mines to Indiana.

During recent years the tonnage of coal moving from the Crescents to Indiana has been steadily increasing, while the tonnage moving from the Indiana and Illinois mines to the same destinations has been steadily decreasing. For example, the Illinois, Indiana and Crescent mines shipped to Indiana destinations 2,826,440, 7,449,939, and 4,905,830 tons, respectively, in 1923; and 1,405,143, 6,379,317, and 5,811,504 tons, respectively, in 1924.



Production And the Market



Widespread Improvement in Bituminous Trade; Weather Rules Anthracite Market

The combination of an unusual export demand, general industrial activity at home and the seasonal call for fuel for heating purposes is keeping bituminous production at high levels, forcing up spot quotations and giving a healthy tone to current trading. Improvement last week was nation-wide. There were, of course, the inevitable differences in the degree of betterment, but the areas in which trade actually was backward were the exception.

Hampton Roads and Baltimore continued to load record tonnages for overseas shipment, with the overflow in this trade gravitating to Philadelphia. New York, after marking time on rumors of an end to the British strike, snapped back into action. The New England spot market was tight, with up to $7.25 and $7.50 asked for Navy Standard coal on cars at Boston. The volume of spot trading, however, was restricted, with neither buyers nor sellers pressing for tonnage.

Business in western and central Pennsylvania was on an even keel, with little change in the quantity moving. Buffalo resumed its fight against higher prices. Ohio registered marked gains. The Southeastern fields are working at top speed. Illinois and Indiana domestic business has improved, but spot steam buying is disappointing. More activity pervades the Southwest.

Price Increases Unchecked

The upward swing in spot quotations still is unchecked. *Coal Age* Index of spot bituminous prices on Oct. 11 was 192 and the corresponding weighted average price was $2.33—an increase of 6c. and four points over Oct. 4. This is the highest reported since Oct. 1, 1923. Central Illinois and Fourth Vein Indiana prices were up; sharp gains were made in West Virginia and in Pittsburgh gas. Southeastern Kentucky slumped, but this was due to the disappearance of paper quotations put out to discourage buying rather than to any actual decrease in demand.

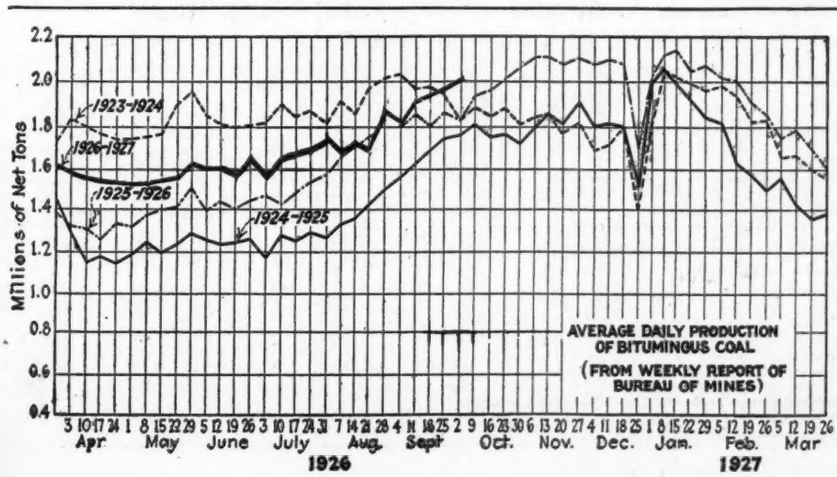
During the week ended Oct. 2 bituminous production was estimated at 12,010,000 net tons, an increase of 293,000 tons over the preceding week. No break in this rate is apparent. Lake dumpings also were well maintained; during the week ended Oct. 10 these were 791,251 tons of cargo and 47,048 tons of vessel fuel, making the season's total to date 23,552,028 tons, as against 21,266,841 tons a year ago.

Labor Situation Causes Concern

Labor and transportation have potentialities which cause some apprehension. There is little or no surplus labor in the non-union districts east of the Mississippi River and the reopening of additional union mines in the Central Competitive Field is cutting down the floating supply. The most recent statement of car surplus shows only 30,205 idle open-tops, as against 63,320 on the corresponding date last year. With such a narrow margin of safety, either or both factors easily might become controlling.

Anthracite demand is good, although there is some unevenness as between markets and sizes. Current developments are influenced largely by weather conditions. Stove is the undisputed leader, but nut is growing in popularity. Pea, too, is enjoying a liberal demand. Egg probably is the most erratic of the major sizes. Notwithstanding a certain amount of price instability, the position of the steam sizes has definitely taken a turn for the better.

Weakness was in evidence in the spot market on Connellsville furnace coke last week, but the volume of trading was small. Foundry coke was firm.



Estimates of Production

(Net Tons)

	1925	1926
BITUMINOUS		
Sept. 18	10,880,000	11,447,000
Sept. 25 (*a*)	11,232,000	11,717,000
Oct. 2	11,008,000	12,010,000
Daily average	1,835,000	2,002,000
Cal. yr. to date (*c*)	369,228,000	409,953,000
Daily av. to date	1,587,000	1,762,000
ANTHRACITE		
Sept. 18	9,000	2,003,000
Sept. 25 (*a*)	13,000	2,059,000
Oct. 2 (*b*)	14,000	2,058,000
Cal. yr. to date (*c*)	61,269,000	62,004,000
Sept. 25 (*a*)	180,000	197,000
Oct. 2 (*b*)	187,000	185,000
Cal. yr. to date (*c*)	7,238,000	9,042,000

(*a*) Revised since last report. (*b*) Subject to revision. (*c*) Adjusted to equalize number of days in the two years.

Midwestern Business Picks Up

Midwestern demand for domestic coal from Illinois and Indiana mines has materially improved during the last few days. Many of the local pits are on a full-time basis, but the commercial operations do not fare as well. Heavy rains still slow up deliveries in some sections of the territory. The high prices asked for Eastern coals have worked to the advantage of the Illinois and Indiana producers, but the latter recognize the uncertain nature of this advantage.

The steam coal market, on the other hand, is disappointing. Prices yield no profit. Although some buyers now seek contracts to cover their requirements to the end of the coal year, producers with free tonnage are not inclined to tie up their output. Fifth Vein Indiana screenings, which have been selling at sacrifice figures, are slightly stronger. Lump too, has advanced, both in Indiana and in central Illinois.

In spite of the improvement in domestic buying, egg still is plentiful and nut is heavy. "No bills" are found in every field. Southern Illinois proper is working three to five days. Except in the case of one or two railroads which are storing coal, railroad demand is light. The rainy weather has hit the stripping operations, but the price differentials at which their coal is sold gives them the edge in a competitive market.

Steam Sizes a Problem

How to keep down accumulations of steam coal is the problem that worries operators in the Duquoin and Jackson County area. Railroad buying, both for current consumption and for storage, promotes activity in the Mt. Olive district. Domestic buying also has increased. A slight betterment is noticeable in the Standard field, with 6-in. lump the most active size. Few mines in that district, it is charged, are actually observing the Jacksonville scale.

St. Louis reports a good demand for medium and higher grade domestic sizes. Inclement weather has stirred householders to action and kept the retailers busy with small-lot deliveries. Country retail trade, however, has been affected adversely by the continued heavy rains. Local wagon steam trade is on the upgrade, but carload business is spotty. On the whole, industrial buying in the outlying districts probably is more active than in St. Louis proper.

There has been no recession in demand for Kentucky coals, but prices in the Louisville market, particularly on coal from the eastern part of the state, are more unsettled. This is due to the fact that many of the quotations made earlier in the month were named to frighten away business; these quotations contrasted with the prices at which the bulk of the tonnage really moves create an impression of weakness which is not supported by bona fide transactions.

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Oct. 12 1925	Sept. 27 1926	Oct. 4 1926	Oct. 11 1926†
Smokeless lump	Columbus	$4.60	$5.10	$5.25	$5.00@$5.50
Smokeless mine run	Columbus	2.55	2.55	2.60	2.50@ 2.75
Smokeless screenings	Columbus	1.50	1.40	1.40	1.35@ 1.50
Smokeless lump	Chicago	4.10	5.75	5.10	**5.25@ 5.75**
Smokeless mine run	Chicago	2.10	2.75	2.85	**2.90@ 3.15**
Smokeless lump	Cincinnati	4.50	4.85	5.00	4.50@ 5.50
Smokeless mine run	Cincinnati	2.35	2.85	2.85	**2.90@ 3.00**
Smokeless screenings	Cincinnati	1.90	1.85	2.25	**2.25@ 2.50**
*Smokeless mine run	Boston	4.75	5.85	6.00	6.00
Clearfield mine run	Boston	1.90	2.45	2.40	**2.15@ 2.75**
Cambria mine run	Boston	2.20	2.60	2.60	2.25@ 3.00
Somerset mine run	Boston	2.05	2.05	2.00	*1.90@ 2.10*
Pool 1 (Navy Standard)	New York	2.85	2.60	2.85	2.75@ 3.00
Pool 1 (Navy Standard)	Philadelphia	2.65	2.70	2.75	2.65@ 2.85
Pool 1 (Navy Standard)	Baltimore	2.30	2.25	2.25	2.20@ 2.30
Pool 9 (Super. Low Vol.)	New York	2.20	2.10	2.35	2.25@ 2.50
Pool 9 (Super. Low Vol.)	Philadelphia	1.95	2.20	2.25	2.15@ 2.40
Pool 9 (Super. Low Vol.)	Baltimore	2.05	1.95	1.95	1.95@ 2.00
Pool 10 (H.Gr.Low Vol.)	New York	2.00	1.90	2.05	1.85@ 2.25
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.85	1.90	2.00	1.90@ 2.10
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.90	1.85	1.85	1.85@ 1.90
Pool 11 (Low Vol.)	New York	1.80	1.80	1.90	1.75@ 2.10
Pool 11 (Low Vol.)	Philadelphia	1.70	1.70	1.80	1.75@ 1.90
Pool 11 (Low Vol.)	Baltimore	1.70	1.80	1.80	1.75@ 1.85
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.60	1.45	1.60	**1.65@ 1.90**
Pool 54-64 (Gas and St.)	Philadelphia	1.60	1.65	2.00	1.90@ 2.10
Pool 54-64 (Gas and St.)	Baltimore	1.65	1.85	1.85	1.80@ 1.95
Pittsburgh scr'd gas	Pittsburgh	2.50	2.40	2.55	**2.75@ 2.85**
Pittsburgh gas mine run	Pittsburgh	2.15	2.10	2.25	**2.40@ 2.50**
Pittsburgh mine run (St.)	Pittsburgh	2.05	2.00	2.05	2.00@ 2.15
Pittsburgh slack (Gas)	Pittsburgh	1.55	1.40	1.40	**1.45@ 1.55**
Kanawha lump	Columbus	2.60	2.75	2.75	**2.75@ 3.25**
Kanawha mine run	Columbus	1.70	1.85	1.95	1.75@ 2.15
Kanawha screenings	Columbus	1.30	1.15	1.15	1.10@ 1.25
W. Va. lump	Cincinnati	2.60	2.60	3.10	**3.00@ 3.50**
W. Va. gas mine run	Cincinnati	1.65	1.85	1.85	**1.75@ 2.25**
W. Va. steam mine run	Cincinnati	1.55	1.65	1.65	**1.60@ 2.00**
W. Va. screenings	Cincinnati	1.25	1.15	1.15	**1.00@ 1.40**
Hocking lump	Columbus	2.70	2.40	2.60	2.50@ 2.75
Hocking mine run	Columbus	1.65	1.55	1.55	1.40@ 1.75
Hocking screenings	Columbus	1.30	1.20	1.20	1.15@ 1.25
Pitts. No. 8 lump	Cleveland	2.35	2.20	2.35	**2.25@ 3.00**
Pitts. No. 8 mine run	Cleveland	1.85	1.75	1.80	**2.00@ 2.10**
Pitts. No. 8 screenings	Cleveland	1.25	1.25	1.30	**1.30@ 1.45**

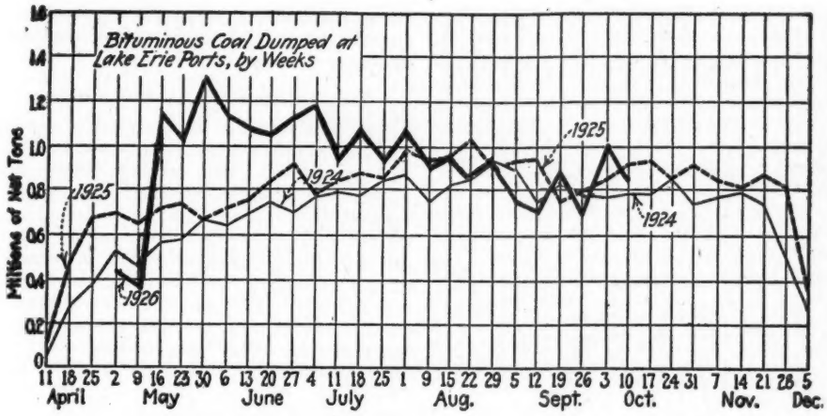
Midwest		Oct. 12 1925	Sept. 27 1926	Oct. 4 1926	Oct. 11 1926†
Franklin, Ill. lump	Chicago	$3.25	$3.25	$3.25	$3.25
Franklin, Ill. mine run	Chicago	2.35	2.40	2.40	2.35@ 2.50
Franklin, Ill. screenings	Chicago	1.60	1.50	1.50	1.40@ 1.65
Central, Ill. lump	Chicago	2.85	2.60	2.60	**2.75@ 3.00**
Central, Ill. mine run	Chicago	2.10	2.20	2.20	2.15@ 2.25
Central, Ill. screenings	Chicago	1.55	1.40	1.40	1.30@ 1.50
Ind. 4th Vein lump	Chicago	3.10	2.85	2.85	2.75@ 3.00
Ind. 4th Vein mine run	Chicago	2.35	2.25	2.25	2.15@ 2.35
Ind. 4th Vein screenings	Chicago	1.60	1.45	1.45	**1.45@ 1.60**
Ind. 5th Vein lump	Chicago	2.35	2.40	2.40	**2.50@ 2.85**
Ind. 5th Vein mine run	Chicago	1.95	2.00	2.00	1.90@ 2.10
Ind. 5th Vein screenings	Chicago	1.40	1.05	1.05	**1.25@ 1.40**
Mt. Olive lump	St. Louis	2.50	2.60	2.60	2.50@ 2.75
Mt. Olive mine run	St. Louis	2.00	2.25	2.25	2.25
Mt. Olive screenings	St. Louis	1.75	1.25	1.25	1.25
Standard lump	St. Louis	2.25	2.15	2.15	2.10@ 2.25
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.85
Standard screenings	St. Louis	1.15	1.05	1.05	1.00@ 1.10
West Ky. block	Louisville	1.75	2.05	2.35	2.25@ 2.50
West Ky. mine run	Louisville	1.30	1.30	1.30	1.15@ 1.50
West Ky. screenings	Louisville	.95	.85	.95	*.75@ 1.00*
West Ky. block	Chicago	2.05	2.10	2.10	2.00@ 2.25
West Ky. mine run	Chicago	1.25	1.15	1.15	1.00@ 1.35
South and Southwest					
Big Seam lump	Birmingham	2.25	2.35	2.35	2.25@ 2.50
Big Seam mine run	Birmingham	1.80	1.85	1.85	1.75@ 2.00
Big Seam (washed)	Birmingham	1.85	2.05	1.90	1.85@ 2.00
S. E Ky. block	Chicago	3.00	2.85	2.85	**3.25@ 3.50**
S. E. Ky. mine run	Chicago	1.95	1.75	1.75	1.60@ 1.90
S. E. Ky. block	Louisville	2.60	3.00	3.35	*3.00@ 3.50*
S. E. Ky. mine run	Louisville	1.50	1.65	1.80	*1.60@ 1.90*
S. E. Ky. screenings	Louisville	1.20	1.15	1.35	*1.25@ 1.40*
S. E. Ky. block	Cincinnati	2.85	2.85	3.75	*3.00@ 3.50*
S. E. Ky. mine run	Cincinnati	1.60	1.80	1.80	*1.60@ 1.85*
S. E. Ky. screenings	Cincinnati	1.25	1.20	1.15	**1.00@ 1.40**
Kansas lump	Kansas City	4.50	4.60	4.60	4.50@ 4.75
Kansas mine run	Kansas City	2.85	3.00	3.00	3.00
Kansas screenings	Kansas City	2.40	2.35	2.35	2.35

* Gross tons, f.o.b. vessel, Hampton Roads
† Advances over previous week shown in **heavy type**, declines in *italics*

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	October 12, 1925 Independent	October 12, 1925 Company	October 4, 1926 Independent	October 4, 1926 Company	October 11, 1926† Independent	October 11, 1926† Company
Broken	New York	$2.34	.....	$8.20@$8.95	.....	$8.50@$9.25	.....	$8.50@$9.25
Broken	Philadelphia	2.39	‡	‡	$9.25	8.50@ 9.15	$9.25	8.50@ 9.15
Egg	New York	2.34	‡	8.65@ 8.90	9.00@ 9.25	8.75@ 9.25	*8.75@ 9.25*	8.75@ 9.25
Egg	Philadelphia	2.39	‡	‡	9.15@ 9.25	9.00@ 9.15	**9.25@ 9.50**	9.00@ 9.15
Egg	Chicago*	5.06	$9.50@$10.00	8.03@ 8.28	8.14	8.13	8.14	8.13
Stove	New York	2.34	‡	9.15@ 9.40	9.60@ 9.85	9.25@ 9.50	*9.50@ 9.85*	9.25@ 9.50
Stove	Philadelphia	2.39	‡	‡	9.60@10.20	9.35@ 9.50	**9.75@10.20**	9.35@ 9.50
Stove	Chicago*	5.06	10.00@11.00	8.48@ 8.80	8.59	8.33@ 8.58	**8.70**	8.33@ 8.58
Chestnut	New York	2.34	‡	8.65@ 8.95	9.20@ 9.50	8.75@ 9.15	**9.25@ 9.50**	8.75@ 9.15
Chestnut	Philadelphia	2.39	‡	‡	9.00@ 9.75	9.00@ 9.15	**9.25@10.00**	9.00@ 9.15
Chestnut	Chicago*	5.06	10.00@11.00	8.50@ 8.75	8.39	8.38@ 8.53	8.39	8.38@ 8.53
Pea	New York	2.22	‡	5.00@ 6.25	6.00@ 6.75	6.00@ 6.50	*6.00@ 6.50*	6.00@ 6.50
Pea	Philadelphia	2.14	‡	5.00@ 6.25	6.30@ 6.75	6.00@ 6.50	6.30@ 6.75	6.00@ 6.50
Pea	Chicago*	4.79	5.50@ 6.00	5.50@ 6.00	6.03	6.10	6.03	6.10
Buckwheat No. 1	New York	2.22	‡	2.50@ 2.60	2.25@ 2.50	2.50@ 3.50	*2.15@ 2.50*	2.50@ 3.50
Buckwheat No. 1	Philadelphia	2.14	‡	2.50@ 2.60	2.00@ 2.50	2.25@ 2.75	**2.25@ 2.50**	**2.50@ 3.00**
Rice	New York	2.22	‡	2.25	1.90@ 2.00	2.00@ 2.25	1.90@ 2.00	2.00@ 2.25
Rice	Philadelphia	2.14	‡	2.25	1.65@ 2.00	1.75@ 2.25	**1.85@ 2.00**	1.75@ 2.25
Barley	New York	2.22	‡	2.25	1.25@ 1.50	1.50@ 1.75	1.25@ 1.50	1.50@ 1.75
Barley	Philadelphia	2.14	‡	1.50	1.50@ 1.75	1.50@ 1.75	**1.65@ 1.75**	1.50@ 1.75
Birdeye	New York	2.22	‡	‡	1.40@ 1.65	2.00	1.40@ 1.65	2.00

* Net tons, f. o. b. mines. † Advances over previous week shown in **heavy type**; declines in *italics*.
‡ Quotations withdrawn because of strike which started Sept. 1, 1925.



Paper vs. Actual Kentucky Prices

Some eastern Kentucky block has been sold at $3.75 and $4 and up to $4.50 has been quoted. Where producers want business, however, 4-in. block can be had at $3@$3.50. Lump, egg and nut are $2.25@$2.75; mine-run, $1.60@$1.90, and slack, $1.25@$1.40. Some 6-in. western Kentucky block is held at $2.60, but most sales are at $2.25@$2.50, with lump and egg, $1.75 @$2.15; nut, $1.45@$1.75; mine-run, $1.15@$1.50, and screenings, 75c.@$1. Fine coal prices are held down by the heavy run of prepared orders.

The docks at the Head of the Lakes are more active at this time than for several years. September shipments totaled 27,590 cars, as against 18,306 cars in August and 24,032 cars in September, 1925. Loadings this month promise to touch the record made last year, when 31,685 cars were dispatched from the docks. Buying orders are well distributed. Prices, except on Pocahontas prepared, which now commands $8 as a minimum, are unchanged.

During September, the docks unloaded 940,467 tons of coal—including 95,574 tons of anthracite—from the lower ports. The season's receipts to Sept. 30 were 7,253,464 tons of bituminous and 995,703 tons of anthracite. Compared to last year these figures showed increases of 208,855 tons in anthracite receipts and 807,642 tons in bituminous. Earlier fears of congestion in unloading have been dissipated. A heavy movement up to the close of navigation is forecast.

Twin Cities Slow; Milwaukee Strong

Demand at the Twin Cities lacks urgency, but there is, nevertheless, a steady movement. The volume of tonnage, while not as great as shippers desire, is heavy enough to support the price schedules previously established. Industrial buying is slightly backward, domestic consumption is on a seasonable basis. Milwaukee reports a strong demand for all grades of fuel, with early advances in the general run of bituminous in sight.

Floods in southeastern Kansas and northeastern Oklahoma have hampered stripping operations and helped to keep the Southwestern market firm. Domestic buying is brisk. Kansas shippers find it easy to obtain $4.75 for Cherokee lump and a basis of $4.50@$5 probably will become general in the next few days. Arkansas producers no longer quote firm prices on future shipments, but current quotations are unchanged from last week.

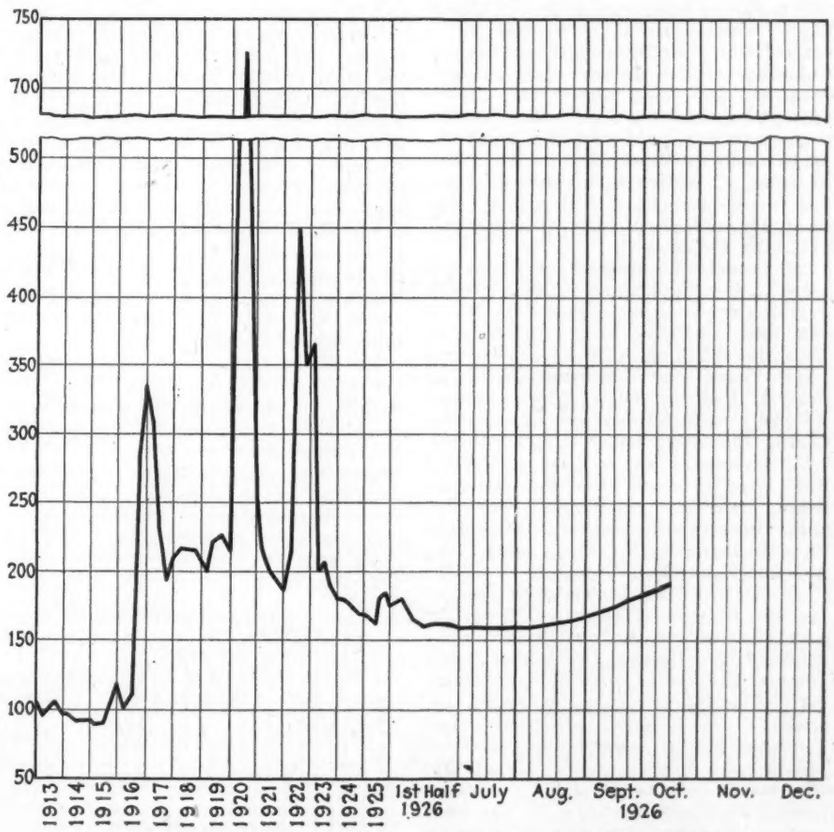
Increased demand for domestic sizes has boosted Colorado output to 66 per cent of capacity and strengthened prices. Walsenburg-Canon City domestic lump now is $6; washed nut, $5; washed chestnut, $3; Trinidad lump, $3.25; fancy chestnut, $3; Crested Butte anthracite, $7.25@$9.10. Wyoming nut and grate have been advanced to $4. Utah operators have added 25 to 50c. to their prices on certain sizes. Lump is $4.50; nut, $3@$3.25; stove, $4; screened slack, $2.25; straight slack, $1.50. Salt Lake retail prices are on the winter basis.

High-Volatiles Take Lead

The high-volatiles took the lead in the price advance in the Cincinnati market last week. Although some extreme quotations on southeastern Kentucky were shaded, good Hazard block touched $3.25 and Harlan and high-grade West Virginia coals readily brought up to $3.50. Threat of car shortage in Kentucky was as much of a factor in the gains as the heavy buying of Southern coals for export shipment.

Low-volatile lump and egg held their recent advances and further appreciation in current quotations was registered in mine-run and slack. Contract customers bought lump and egg at $4.50@$5, but the spot market paid $5.25@$5.50. Stove was offered at $4 @$4.25 and nut was pushed up to $3.75 @$4. Practically all the $2.75 mine-run is off the market and the price range has narrowed to $2.90@$3. Spot slack has jumped to $2.25@$2.50, as against $2@$2.50 a week ago.

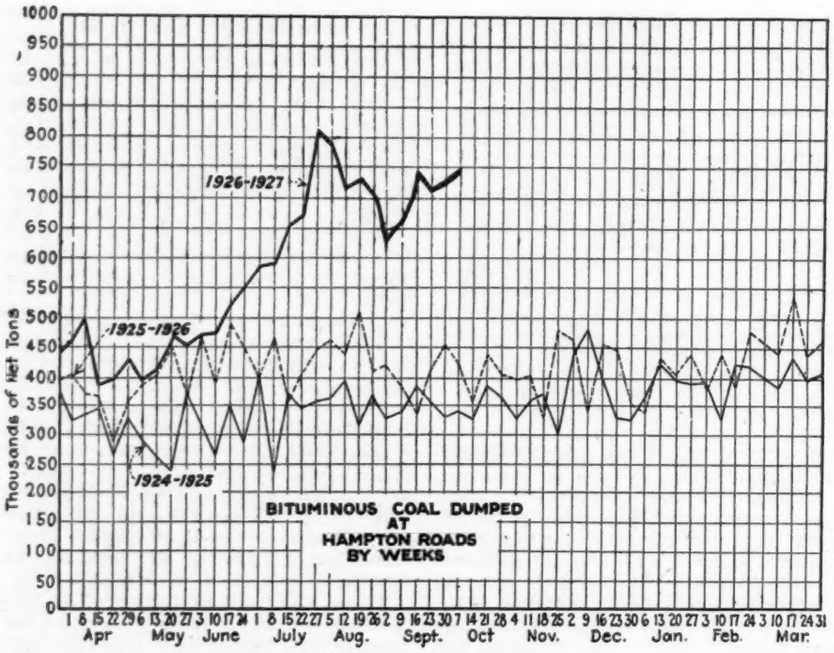
There was a slight falling off in the number of coal loads interchanged through the Cincinnati gateway last week. The total was 13,797 cars, including 2,692 cars en route to the lakes for transshipment. In the total interchange, Chesapeake & Ohio traffic showed a loss of 519 cars when compared with the preceding week, Norfolk & Western a loss of 18 and Louisville



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1926				1925	1924
	Oct. 11	Oct. 4	Sept. 27	Sept. 20	Oct. 12	Oct. 13
Index	192	188	183	181	175	174
Weighted average price	$2.33	$2.27	$2.22	$2.19	$2.11	$2.10

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.


1926-1927
1925-1926
1924-1925
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Thousands of Net Tons
Apr May June July Aug. Sept. Oct Nov. Dec. Jan. Feb. Mar.

& Nashville a gain of 341 cars. There was a slight increase in the number of empties moving to C. & O. and L. & N. mines.

Central Ohio Market Stronger

Marked strength in domestic buying and a slower acceleration in the steam trade characterizes the market in central Ohio. Retailers buying through Columbus houses are growing nervous because they can not obtain more prompt deliveries. In many cases premiums are paid for car numbers, particularly on West Virginia coal. The overflow of orders into southern Ohio has raised production in that field close to 50 per cent of capacity. More mines are being reopened.

Sentiment in the Cleveland market is more bullish than at any previous time during the past year. Prices on No. 8 coal have advanced 15 to 25c. per ton, with the draining of the surplus tonnage from the Southern producing fields. Eastern Ohio mines hoisted 297,000 tons, or 42 per cent of capacity, during the week ended Oct. 2. Industrial buying is expanding, with steel mills storing some coal and railroads taking more fuel for current consumption. Retail yards are hard put to keep up with demands for Pocahontas lump and for choice Ohio coal.

Rejection of the government plan to end the British strike was followed by a quick upturn in gas coal prices in the Pittsburgh district. Screened coal jumped 25c., mine-run, 20c. and slack, 10c. The higher prices, however, are limited to prompt shipment coal. Decrease in the movement of screened steam coals has tightened the market on steam slack. Panhandle readily brings $1.50 and up to $1.60 has been asked. Working time in the Bessemer section is increasing. The non-union mines in group 1, north of Butler, are operating almost every day and the union mines in group 2, south of Butler, are enjoying a moderate expansion in demand.

Quotations on pool 1 coal in central Pennsylvania increased 10c. to 15c. last week and an advance of 5c. was marked up in the minimum on pool 71. Other pool offerings were at the same prices which prevailed during the preceding week. Pool 1 was $2.75@$3; pool 71, $2.35@$2.50; pool 9, $2.15@$2.25; pool 10, $1.85@$2; pool 11, $1.70@$1.75 and pool 18, $1.65. Loadings the week ended Oct. 2 showed an increase of 457 cars.

Current asking prices in the Buffalo market are up 5c. to 30c. Buyers for the most part insist that they will not pay the higher figures quoted on high-volatile coals. Still sharper increases are demanded for low volatile, but Buffalo is not interested in these coals at the present price bases. Nominal high-volatile quotations are: Fairmont lump, $1.90@$2.15; mine-run, $1.75@$1.90; slack, $1.35@$1.50; Youghiogheny gas lump, $2.75@$3; slack, $1.60; Pittsburgh and No. 8 steam lump, $2@$2.25; slack, $1.50@$1.60; Allegheny Valley mine-run, $1.75@$2.

Little new business in smokeless was booked at Boston last week. Some spot orders, to clean up cargoes in port, were taken at $7, but $7.25 now is the prevailing price on cars for further shipments. At Providence buyers have fought shy of paying over $7, but most shippers now demand $7.10@$7.15 and one pocket is holding out for $7.50. With coal $6 at Hampton Roads and vessel rates up 10c., however, there is little disposition to shade quotations. On the contrary, many are predicting an early advance to $7.50.

Tide Prices Help All-Rail Coals

The stiff market on tidewater coals has quickened consumer interest in all-rail movement from central Pennsylvania. Producers of the coals most marketable in New England, however, do not seem to be in a position to take on much additional business—at least at prices which the New England buyers are willing to pay. Coke demand, too, is strong. Some quotations have been withdrawn. Connellsville foundry coke acceptable to buyers is held at $5@$5.25 ovens and West Virginia $12 @$12.50, Boston. There is little demand for crushed coke for household use.

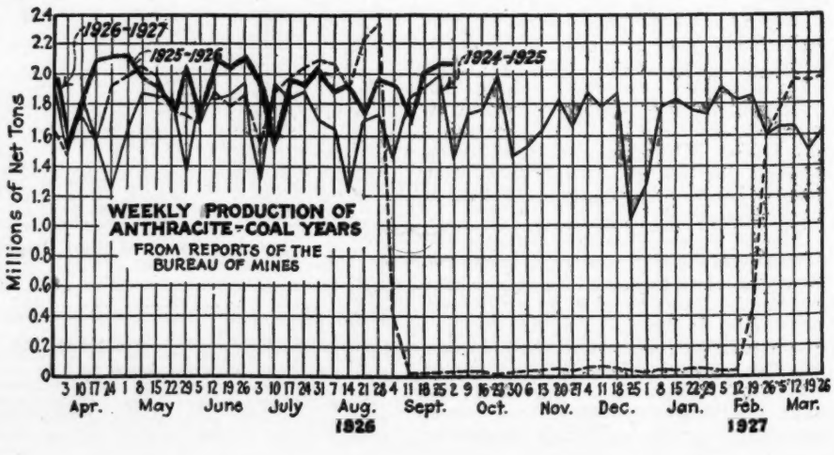
Rejection of the government's peace program in the British strike was followed by renewed activity in the New York market. The slackening tendency which had set in on unofficial advices of an early termination of the British suspension was checked, but there was no increase in tidewater prices. Consumers, however, are beginning to realize that winter is not far off and are giving some attention to reserve supplies.

The combination of the British strike and the fall season is keeping the Philadelphia market active. There is less high grade central Pennsylvania coal offered to spot buyers and shipments on open orders are less prompt. In the meantime, railroads and other large contract customers are pressing for delivery. High-volatile slack is tighter. Labor is none too plentiful. Export business at Philadelphia is well maintained and bunker trade more than holds its own.

Baltimore Ignores Thermometer

Summer temperatures at Baltimore last week were ignored by large consumers who were more concerned with the continued heavy movement of coal for export. As forecast, September loadings for foreign shipment broke all previous records. The total loaded, exclusive of 40,695 tons of bunker coal, was 774,460 gross tons. Despite this movement, prices for local and inland delivery have shown no sharp increase. Purchasing agents, however, are beginning to worry over the outlook.

Gradual improvement characterizes the course of the Birmingham market.



Car Loadings and Supply

	Cars Loaded—All Cars	Cars Loaded—Coal Cars
Week ended Sept. 25, 1926.....	1,182,940	211,722
Week ended Sept. 18, 1926.....	1,187,011	206,638
Week ended Sept. 26, 1925.....	1,120,645	178,463
Week ended Sept. 19, 1925.....	1,098,627	171,925

	Surplus Cars—All Cars	Surplus Cars—Coal Cars	Car Shortages—All Cars	Car Shortages—Coal Cars
Sept. 23, 1926...	124,142	30,205	.....	.....
Sept. 15, 1926...	137,377	35,387	.....	.....
Sept. 22, 1925...	150,453	63,320	.....	.....

Cooler weather is expected to quicken buying of domestic grades and there is a slight increase in spot demand for steam coals, principally for current consumption. Washed coal for coking is very active. Bunker business, too, is increasing. The foundry coke market is strong, with $6 asked for fourth-quarter contracts and spot shipments. Domestic grades are firm at $5 for egg, $4.50@$5 for stove and $4@$4.50 for nut.

The hard-coal market at New York last week was spotty. Company coals moved easily, but more effort was required to keep independent tonnage from backing up. Independent egg, stove, pea and No. 1 buckwheat quotations were weaker and maximum prices were not pressed. The outlook for the winter, however, is considered excellent. There was no startling change in the steam division of the trade.

Philadelphia Market Erratic

At Philadelphia, movement as reflected in prices was somewhat erratic. Company circulars were unchanged, with stove scarce. In general, independent price levels on the major sizes were higher. Many shippers reported that they were sold up on stove for the month, while some offered a car of this size with every two of nut. Egg is fairly active and there is little surplus pea to upset the market.

Independent quotations on steam sizes were stronger. Many large consumers now are taking No. 1 buckwheat in liberal quantities. One company shipper has advanced its price on this size from $2.50 to $3. Rice also is in good shape. Barley, however, is the most active of the steam sizes. The majority of the shippers have all the orders that they need to take care of current production of this size.

Baltimore householders are displaying renewed interest in their winter fuel supplies. New business was slowed up by weather conditions at Boston, but deliveries on old orders kept retail yards busy. There was little demand for premium coal. Local Buffalo buying followed the rise and fall of the mercury. Lake loadings the week ended Oct. 7 dropped to 25,000 tons, of which 8,500 tons cleared for Milwaukee, 7,500 tons for Duluth, 6,500 tons for Chicago, and 2,500 tons for the Sault.

Connellsville Coke Weakens

Spot prices on Connellsville furnace coke were weaker last week, but offerings were light. Some ovens still held to $3.50 and even more was paid for stray carloads, but, on the other hand, some tonnage sold down to $3.35. It is hard to buy furnace coke for extended delivery although actual demand is not heavy. At least one fourth-quarter contract has been closed at $3.50. Spot foundry is scarcer and it would not be surprising if the market advanced beyond $4.25@$4.75.

Production of beehive coke in the Connellsville and Lower Connellsville region during the week ended Oct. 2, according to the Connellsville *Courier*, was 149,780 tons, an increase of 9,090 tons over the preceding week and the largest weekly output since last May. Furnace-oven production was 71,500 tons, an increase of 5,900 tons. Merchant-oven output was 78,280 tons, an increase of 3,190 tons.

Blast in South African Mine Entombs Over 100 Men

More than a hundred men are reported to have lost their lives in a terrific explosion, Oct. 8, in Shaft No. 2 of the Durban Navigation Co. colliery, at Dannhauser, Natal, South Africa. The explosion, which is thought to have been due to a short-circuit, entombed all those at work in the mine at the time, estimates varying from 120 to 154, of whom 4 were Europeans and the remainder natives.

Attempts at rescue were greatly impeded by fire and afterdamp. After working all night in oxygen breathing apparatus, however, the rescue workers recovered 30 bodies, all natives. All the others entombed are believed to be dead. The shaft was completely destroyed. At the time of the explosion flame is said to have belched from the shaft mouth, lighting up the surrounding country.

Coke Output Drops in August

Production of byproduct coke in the United States during August remained almost stationary, the total amounting to 3,749,000 tons, compared with 3,756,000 tons in July, a decrease of less than two-tenths of one per cent. The daily rate declined in the same ratio from 121,156 tons in July to 120,930 tons in August. There were 75 active plants, the same number as in July, and these plants produced about 90 per cent of their total capacity.

The output of beehive coke during August was the smallest during the current year, amounting to 752,000 tons, a decrease of 22 per cent when compared with the July total.

Output of all coke totaled 4,501,000 tons, byproduct plants contributing 83 per cent and beehive plants 17 per cent.

Output of Byproduct and Beehive Coke in the United States by Months (a)

(In thousands of net tons)

	Byproduct	Beehive	Total
1923 monthly average..	3,133	1,615	4,748
1924 monthly average..	2,833	806	3,639
1925 monthly average..	3,326*b*	946*b*	4,272*b*
May, 1926.....	3,722	884	4,606
June, 1926.....	3,610	811	4,421
July, 1926.....	3,756	963	4,719
August, 1926.....	3,749	752	4,501

a Excludes screenings and breeze.
b Revised since last report.

The total quantity of coal consumed at coke plants in August was about 6,574,000 tons, of which 5,386,000 tons was consumed in byproduct ovens and 1,188,000 tons in beehive ovens.

Of the total output of byproduct coke during August 3,119,000 tons, or 83.2 per cent, was made in plants associated with iron furnaces, and 630,000 tons, or 16.8 per cent, was made in merchant or other plants.

Output and Value of Coke and Byproducts In United States in 1925*

	Byproduct	Beehive	Total
Coke produced, net tons	39,912,159	11,354,784	51,266,943
Value	$210,827,571	$51,731,566	$262,559,137
Screenings and breeze produced, net tons	3,546,099	272,556	3,818,655
Value	$8,945,345	$453,012	$9,398,357
Coal charged into ovens, net tons	57,109,651	17,422,581	74,532,232
Value	$220,204,403	$35,777,750	$255,982,153
Average value	$3.86	$2.05	$3.43
Average yield in per cent of coal charged:			
Coke	69.9	65.2	68.8
Breeze (at plants actually recovering)	6.2	4.4	6.0
Ovens in existence Jan. 1	11,413	60,432	71,845
In existance Dec. 31	11,290	57,587	68,877
Dismantled during year	499	2,909	3,408
In course of construction Dec. 31	429	.....	429
Coke used by operator in blast furnace, or affiliated works, net tons	28,223,838	2,032,944	30,256,782
Value	$134,245,288	$9,502,959	$143,748,247
Disposal of coke:			
Sold for furnace use to affiliated corporations, net tons	2,641,729	3,479,728	6,121,457
Value	$13,794,422	$16,497,801	$30,292,223
Merchant sales of furnace coke, net tons	1,736,112	3,895,983	5,632,095
Value	$9,954,964	$15,722,122	$25,677,086
Sold for foundry use, net tons	1,833,372	1,153,665	2,987,037
Value	$14,630,450	$5,971,595	$20,602,045
Sold for domestic use, net tons	4,085,068	392,698	4,477,766
Value	$28,521,425	$2,240,546	$30,761,971
Sold for industrial and other use, net tons	2,072,635	572,949	2,645,584
Value	$14,849,829	$2,494,947	$17,344,776
Disposal of screenings and breeze:			
Used by operator, net tons	2,735,738	79,432	2,815,170
Value	$5,521,262	$94,406	$5,615,668
Sold, net tons	849,444	68,372	917,816
Value	$3,039,718	$192,449	$3,232,167
Byproducts produced:			
Gas, 1,000 cu.ft.	639,644,062	.....	639,644,062
Tar, gallons	480,848,814	.....	480,848,814
Ammonium sulphate or equivalent, pounds	1,278,037,618	.....	1,278,037,618
Crude light oil, gallons	146,443,106	.....	146,443,106
Value of byproducts sold:			
Gas (surplus)	$61,484,219	.....	$61,484,219
Tar	$11,903,196	.....	$11,903,196
Ammonium sulphate or equivalent	$27,513,793	.....	$27,513,793
Crude light oil and derivatives	$21,594,357	.....	$21,594,357

* Excluding petroleum coke, the output of which amounted in 1925 to 991,000 tons, and retort or gas-house coke, of which 1,387,658 tons was sold in 1922. Compiled by U. S. Bureau of Mines.

Foreign Market And Export News

Warm Weather Chills Coal Ardor Of French Consumers

Paris, France, Sept. 23. — Warm weather is holding back domestic buying in the French coal markets. So long as the sun hangs high householders show little interest in special summer prices on fuel. Even industrial demand is tapering off, but for this the mercury cannot be blamed.

As a result, local fuel merchants find stocks of all grades except flaming coals and ovoids accumulating. The scarcity of the latter is explained by the fact that patent fuel plants which failed to cover on pitch last year are limiting production rather than pay current quotations on binder material.

French collieries continue active, but offerings of coal from other countries are stirring up competition. Germany, Holland and Belgium are seeking a firmer foothold here. Several offers of German anthracite for the rest of the year have been made at 44.5 mks. for cobbles, 51 mks. for nuts and 31 mks. for beans at the Belgian-German frontier. At current rates of exchange, these prices approximate 370, 423 and 250 fr., respectively. Transport costs to Paris are 86.50 fr.

Kerkrade anthracite from Holland has been offered at 385 fr. for cobbles and 450 fr. for nuts. The Russians are working to popularize the coal from the Donetz basin. A determined effort apparently is to be made to keep the Russian anthracites on the market after the resumption of British mining.

During August France imported 1,293,667 metric tons of coal, 415,681 tons of coke and 93,440 tons of patent fuel. Exports the same month were 419,109 tons of coal, 36,372 tons of coke and 18,590 tons of patent fuel. The import statistics credit Great Britain with shipping 95,777 tons of coal. Germany leads with shipments to France of 854,150 tons of coal and 352,216 tons of coke.

German Imports Decline; Exports Up

German imports of bituminous coal during the first six months of 1926 were less than 45 per cent of the quantities imported during the corresponding period of last year. Exports, on the other hand, have had a marked increase over the same interval, rising from about 6,500,000 metric tons in the first six months of 1925 to more than 9,000,000 tons this year.

Great Britain, the chief source of German imports of bituminous coal, furnished only 1,280,000 metric tons during the first half of 1926, or less than 30 per cent of the 1913 figure. The Netherlands was the largest buyer of German coal, taking more than 4,000,000 metric tons during the six-months period.

It is noticeable that in the list of destinations for German coal exports during the first half of 1926 are Portugal, Algeria, Argentina, and Sweden, countries which under normal conditions would hardly import the German product. Exports to France during the first six months of 1926 increased by 55 per cent over those for the second half of 1925, and exports to Italy were almost four times those of the preceding six months period. These exports do not include reparations deliveries.

Machines Increase Ruhr Output

With a shorter working shift, output per man per day in the Ruhr coal mines has increased from an average of 943 kilos (2,074 lb.) per shift in 1914 to 1,081 kilos (2,378 lb.) in 1926, due to the introduction of machine mining methods. The pre-war shift was 8½ hours, in comparison with an 8-hour shift at present. It has been estimated that while only 5 per cent of the Ruhr coal output was machine mined in 1914, about 50.4 per cent is now obtained by that method.

Export Clearances, Week Ended Oct. 7

FROM HAMPTON ROADS

	Tons
For United Kingdom:	
Br. Str. Rudby	7,500
Jugoslav. Str. Jadera	5,927
Br. Str. Delilian	3,013
Br. Str. Lamington	5,001
Br. Str. Zurichmoor	6,536
Br. Str. Poplar Brand	7,314
Amer. Str. Suwarinco	4,291
Ger. Str. Teja	6,415
Br. Str. Saint Dunstan	7,204
Br. Str. King Edward	6,814
Ger. Str. Tatila	5,840
Br. Str. Maryland	6,168
Br. Str. Blairtholl	5,006
Br. Str. Haggersgate	8,018
Br. Str. Woron	7,391
Br. Str. Laurel Park	2,656
Br. Str. Drakepool	7,512
Ital. Str. Hermada	6,493
Nor. Str. Delaware	5,122
Nor. Str. Valdemar Skogland	6,531
Br. Str. Pikepool	5,228
Br. Str. Mombassa	6,307
Du. Str. Linderdijk	5,166
Br. Str. Mississippi	6,509
Fr. Str. Anglet	4,816
Nor. Str. Hassel	5,584
For Argentina:	
Br. Str. Duns Law, for Buenos Aires	5,125
For Brazil:	
Br. Str. Dovenby Hall, for Rio de Janeiro	5,816
Br. Str. Baron Inchcape, for Rio de Janeiro	9,009
Fr. Str. Port De Marseilles	5,313
Ital. Str. Valsavoia, for Rio de Janeiro	6,740
For Cuba:	
Dan. Str. Nordhavet, for Cayo Frances	4,789
For New Brunswick:	
Amer. Schr. Lieut. Sam Mengel, for St. John	1,200
For Miquelon:	
Br. Str. Fred Cleeves, for St. Pierre	1,967
For Egypt:	
Grk. Str. Vasilevusa, for Port Said	6,206
Ger. Str. Matronna, for Port Said	4,330
For England:	
Br. Str. Sylvia de Larrinaga, for London	6,675
For Spain:	
Amer. Str. Commercial Trader, for Gibraltar	7,017
Fr. Str. P. L. M. 23, for Gibraltar	8,036
For Italy:	
Ital. Str. Columbia, for Trieste	5,076
For Wales:	
Amer. Str. Suscolanco, for Swansea	4,182

FROM BALTIMORE

For England:	
Br. Str. Collingham for Queenstown, Ireland, for orders	6,341
Br. Str. Sedgepool for Queenstown, Ireland, for orders	8,728
Br. Str. Dalemoor for Queenstown, Ireland, for orders	8,023
Swed. Str. Sagoland for Queenstown, Ireland, for orders	8,514
Br. Str. Valdura for Queenstown, Ireland, for orders	7,861
Dut. Str. Ares, for Lands End, for orders	3,716
Br. Str. Elwick Tower, for Queenstown, Ireland, for orders	5,513
Br. Str. Koranton, for Queenstown, Ireland, for orders	9,723
Br. Str. Pacific Transport, for Queenstown, Ireland, for orders	7,231
Br. Str. Wearbridge, for Queenstown, Ireland, for orders	6,302
Nor. Str. Havo, for Queenstown, Ireland, for orders	7,312
Belg. Str. Gasconier, for Lands End for orders	6,626
Belg. Str. Menapier, for Birkenhead	6,609
Br. Str. Cerrington Court, for Barry for orders	7,194
For Ireland:	
Br. Str. Cape Cross, for Dublin	5,605
Br. Str. Shandon, for Cork	4,805
For Italy:	
Ital. Str. Elio, for Genoa	6,518
Ital. Str. Campania, for Gibraltar for orders	6,845
Ital. Str. Giorgio Ohlsen, for Civita Vecchia	6,605
For Egypt:	
Br. Str. Molesey, for Alexandria	5,517
For Porto Rico:	
Am. Str. Delisle, for Ponce	185
For Norway:	
Nor. Str. Sago, for Oslo	6,598

PROM PHILADELPHIA

For United Kingdom:	
Br. Str. King Cadwallon	——
Br. Str. Copenhagen	——
Dan. Str. Jelling	——
Br. Str. King Bloddyn	——
Br. Str. Pennyworth	——
Am. Str. Sujamsco	——
Br. Str. Diplomat	——
For Hayti:	
Am. Str. Catherine Weems, for Fort de France	——
For Jamaica:	
Br. Str. Mayapi, for Kingston	——
For Porto Rico:	
Am. Str. Buffalo Bridge, for San Juan	——
For Canary Islands:	
Am. Str. Commercial Courier, for Teneriffe	——
Ital. Str. Giulia, for Teneriffe and Las Palmas	——
For Cape Verde:	
Dan. Str. Nordfarer, for St. Vincent	——
For Argentina:	
Br. Str. Albany, for Ibicuy	——
For Cuba:	
Nor. Str. Thorgerd, for Havana	——

Hampton Roads Coal Dumpings*

(In Gross Tons)

	Sept. 30	Oct. 7
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week	264,859	235,869
Virginian Piers, Sewalls Pt.:		
Tons dumped for week	173,381	190,653
C. & O. Piers, Newport News:		
Tons dumped for week	209,613	243,013

*Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS

	Sept. 30,	Oct. 7,†
Pool 1, New York	$5.50@$5.75	$5.50@$5.75
Pool 9, New York	5.00@ 5.20	**5.00@ 5.25**
Pool 10, New York	4.70@ 5.00	**4.75@ 5.00**
Pool 11, New York	4.60@ 4.75	4.60@ 4.75
Pool 9, Philadelphia	5.10@ 5.30	5.10@ 5.30
Pool 10, Philadelphia	4.80@ 5.00	4.80@ 5.00
Pool 11, Philadelphia	4.50@ 4.70	4.50@ 4.70
Pool 1, Hamp. Roads	6.25@ 6.50	*6.25@ 6.35*
Pool 2, Hamp. Roads	5.75@ 6.00	**6.15@ 6.25**
Pool 3, Hamp. Roads	5.25@ 5.40	**5.75**
Pools 5-6-7, Hamp. Rds.	5.50@ 6.00	**6.00**

BUNKERS

Pool 1, New York	$5.75@$6.00	$5.75@$6.00
Pool 9, New York	5.25@ 5.45	**5.25@ 5.50**
Pool 10, New York	4.95@ 5.25	**5.00@ 5.25**
Pool 11, New York	4.85@ 5.00	4.85@ 5.00
Pool 9, Philadelphia	5.35@ 5.50	5.35@ 5.50
Pool 10, Philadelphia	5.05@ 5.25	5.05@ 5.52
Pool 11, Philadelphia	4.75@ 4.95	4.75@ 4.95
Pool 1, Hamp. Roads	6.25@ 6.50	*6.35*
Pool 2, Hamp. Roads	5.75@ 6.00	**6.25**
Pools 5-6-7, Hamp. Rds.	5.50@ 6.00	**6.00**

Coming Meetings

Kanawha Coal Operators' Association. Annual meeting Oct. 21, Charleston, West Va. Secretary, D. C. Kennedy, Charleston, West Va.

Canadian Institute of Mining and Metallurgy. Eighth annual western meeting, held jointly with the northwest section of the American Institute of Mining and Metallurgical Engineers, second week in October, Spokane, Wash., and Cranbrook, B. C. Secretary, British Columbia Division, H. Mortimer-Lamb, Birks Bldg., Vancouver, B. C.

Illinois Coal Traffic Bureau. Annual meeting Oct. 28, Fisher Bldg., Chicago, Ill. Traffic Manager, W. Y. Wildman, Fisher Bldg., Chicago, Ill.

National Safety Council. Oct. 25-29, at Detroit, Mich. Managing director, W. H. Cameron, 108 East Ohio St., Chicago, Ill.

National Conference of Business Paper Editors. Annual convention at Hotel Astor, New York City, Nov. 8-10. Secretary, D. G. Woolf, 334 Fourth Ave., New York City.

Illinois Mining Institute. Annual meeting, Nov. 12 and 13 at Harrisburg, Ill. Edward Coulehan, superintendent, Saline County Coal Corp., Harrisburg, Ill., chairman of committee on arrangements.

Bituminous Coal Conference, Carnegie Institute of Technology, Pittsburgh, Pa., Nov. 15 to 18. Secretary, Prof. Sumner B. Ely, Carnegie Institute of Technology, Pittsburgh, Pa.

Harlan County Coal Operators' Association. Annual meeting Nov. 17 at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

National Industrial Traffic League. Commodore Hotel, New York City, Nov. 17 and 18. Executive secretary, J. W. Beek, Chicago, Ill.

American Welding Society. Fall meeting Nov. 17-19, Buffalo, N. Y. Secretary, M. M. Kelly, 29 W. 39th St., New York City.

American Society of Mechanical Engineers. Annual meeting, Engineering Societies Building, 29 W. 39th St., New York City, Dec. 6-9. Secretary, Calvin W. Rice, 29 W. 39th St., New York City.

Coal Mining Institute of America. Annual meeting, Chamber of Commerce, Pittsburgh, Pa., Dec. 8, 9 and 10. Secretary, H. D. Mason, Jr., Box 604, Ebensburg, Pa.

Trade Literature

The "King Coal" Automatic Mechanical Stoker. Joseph Harrington Co., Harvey, Ill. Catalog No. 100. Pp. 16; 8x11 in.; illustrated. Describes a stoker designed especially for small boilers—40 to 250 rated horsepower—for either heating or power.

Coxe Traveling Grate Stoker. Combustion Engineering Corp., New York City. Catalog C-4 Pp. 15; 8x11 in.; illustrated. The design, construction and method of operation are described.

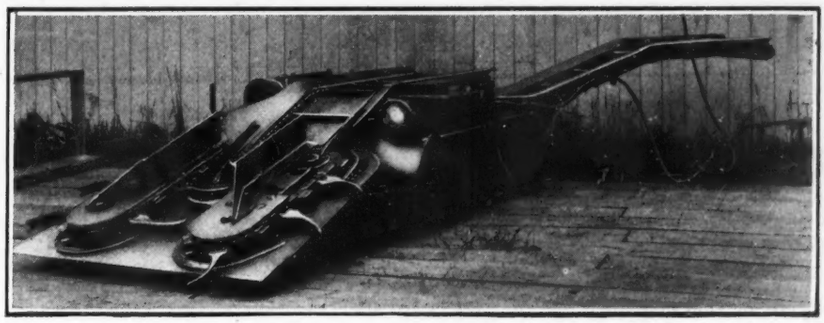
New Equipment

Low Crawler-Mounted Flameproof Loader Sweeps Loosened Coal from Face with Arms on Sprocket Chain

Working in co-operation with the Barnes & Tucker Co., a coal producer with mines in central Pennsylvania, C. W. Shanaberger, of Johnstown, Pa., has developed the new low-height large-capacity coal loader shown in the accompanying illustrations. These machines are now being built under the supervision of C. P. Brinton, chief engineer, in the shops of the coal company.

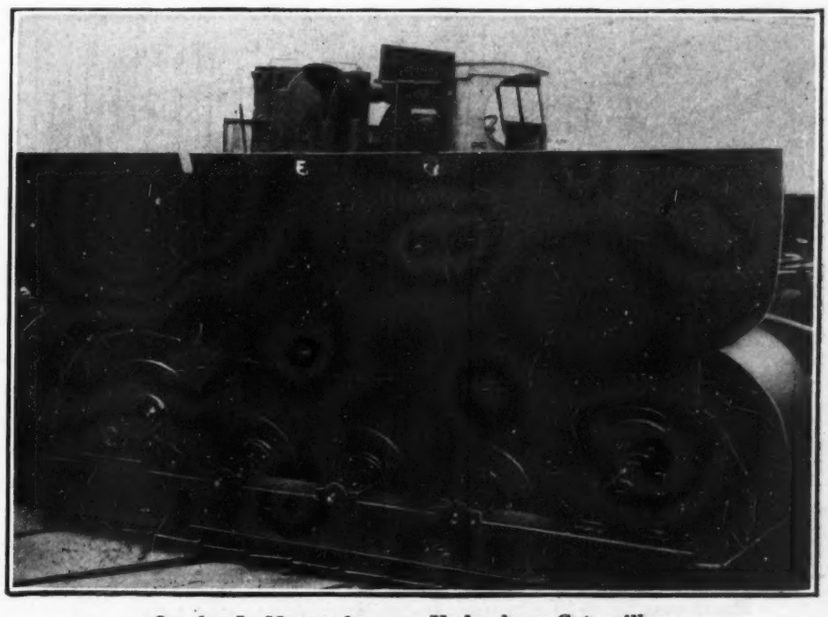
This coal loader, which is underslung and caterpillar-mounted, is 30-in. high, 62-in. wide, 19-ft. long and weighs 7,000 lb. The head consists of two chains carrying hinged arms which gather the coal, drag it across a plow plate and deliver it to a flight conveyor which, in turn, passes it on to a delivery conveyor. All parts are readily accessible for inspection or repair and all elements with the exception of the rear or delivery conveyor are driven by a single 18-hp. motor. This motor also propels the machine giving a traversing speed of 180 ft. per minute.

The tractor suspension is rigidly attached to the main frame which is built up of plates and structural shapes. The tractor element is specially designed and underslung to keep down the overall height. Thus, the suspension frame is below the center line of the sprocket shafts. The main transmis-



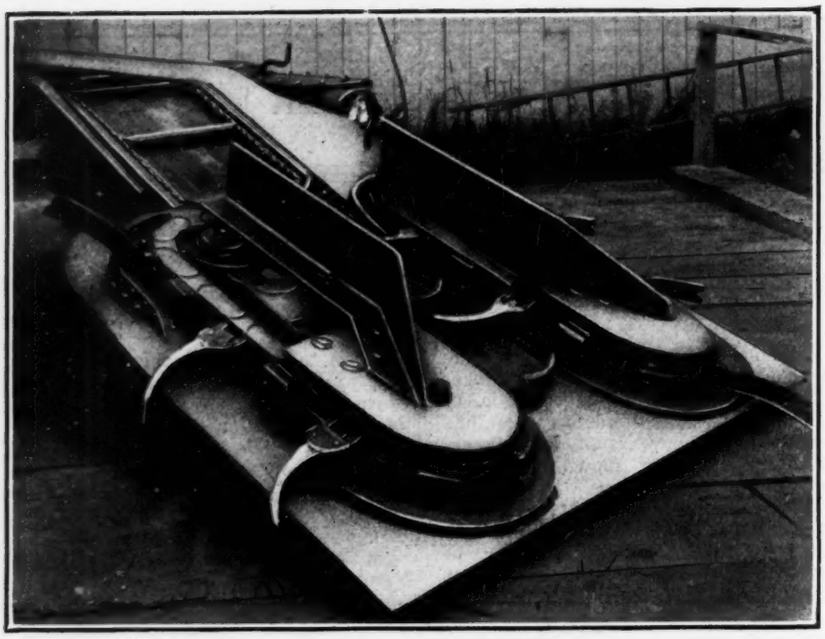
Loader Only Twenty-Five Inches Above Ground

Central Pennsylvania has thin seams. This machine is designed primarily for use in that state. It will load coal where the height from floor to roof is 36 in. or over, giving it a wide range of availability.



Loader Is Mounted on an Underslung Caterpillar

This enables the machine to be built unusually low. The three rolls run idle and serve to support the treads between the two sprockets. In this illustration the hinged housing cover has been raised to expose these parts to view.



Gathering End of Loader Showing Arms That Sweep Up Coal

A hinged plow plate onto which the coal is gathered by moving arms which are carried by two sprocket chains constitutes the gathering head. These arms are hinged and on reaching the discharge end of the plow plate they are swung upward through an angle of 70 deg. by a cam track.

sion is suspended within this frame and is actuated by a worm gear and an eccentric friction so arranged as to give independent tread drive by means of sprocket chains. The transmission proper is totally enclosed and runs in oil. This is true also of the other main portions of this machine.

Shear pins are provided in the drive sprocket of the tractor. These will break should the machine meet with unusual resistance. By this arrangement the transmission clutches are relieved of undue load and the jamming or buckling of the caterpillar treads is eliminated. The tractor sprockets are mounted in plain bearings, but the intermediate or weight-sustaining rolls are fitted with anti-friction bearings.

Coal is gathered onto the plow plate by pick-up arms carried by the two parallel sprocket chains. These arms are hinged, but run in contact with the plow plate until they reach the discharge end where they are lifted through a vertical angle of about 70 deg. by a cam. The arms do not, therefore, interfere with the discharge of coal from the plow plate to the conveyor on the main body of the machine.

Both pickup chains are driven from the main shaft of the transmission. This shaft drives a second or jack shaft which in turn, by means of chains, actuates two worm-gear shafts on which are mounted the pickup chain sprockets. These are also provided with shear pins that break in case too much resistance is encountered. All such pins are easily replaced.

The plow plate is hinged to the main frame and may be raised or lowered by means of a manually operated hydraulic jack located within easy reach of the operative. This jack develops a lift of 35 tons. The front end of the plow plate may be raised 2 in. above the bottom of the main frame or lowered to 9-in. below this level.

CONVEYOR IS 20 IN. WIDE

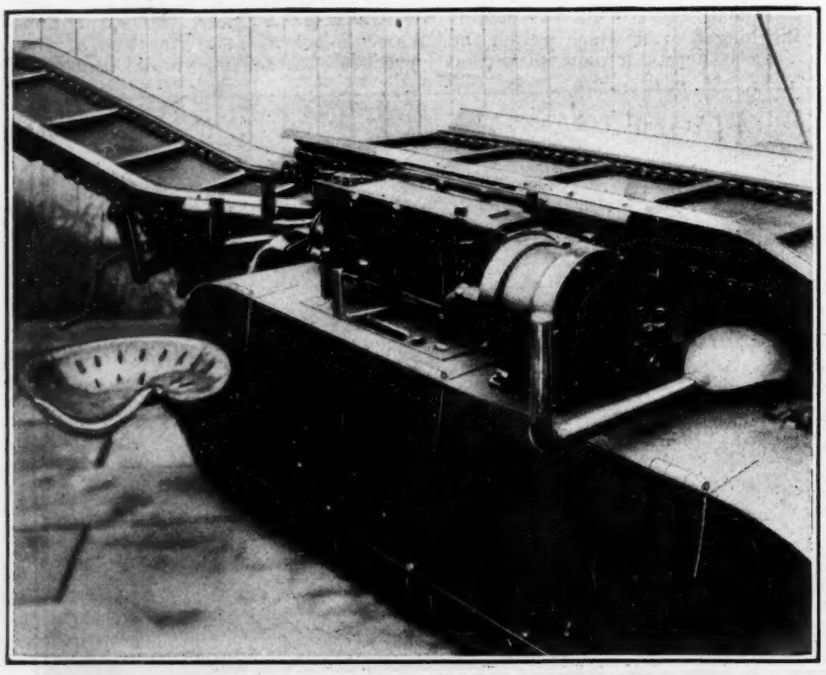
Drag flights carried between two sprocket chains which run over and under a ½-in. bedplate constitute the middle conveyor which rests on the main body of the machine. This conveyor is 20-in. wide and is driven at a lineal speed of 100 ft. per min. Operation of this conveyor is controlled through a clutch.

The rear conveyor, which is about 12 ft. long may be swung manually to either right or left to an angle of 90 deg. with the axis of the machine. This loader is furnished with either a straight-section rear conveyor for discharging to a line conveyor or one in the shape of a gooseneck intended for loading mine cars. The discharge conveyor likewise is of the drag type and is independently driven by a 3-hp. motor mounted in the base of the turntable. Its speed is 190 ft. per minute and it may be elevated or lowered by a 6-ton, screw jack that is manually operated.

All electrical portions of this machine are totally inclosed and designed in accordance with the specifications of the U. S. Bureau of Mines. Although of permissible type, this equipment has not yet had government approval.

Movements of this machine are controlled by three operating levers, one for the main clutch and one for each of the caterpillar-tread mechanisms. Retrograde motion of the machine is secured by throwing a lever which reverses the main motor. Power feed is of course regulated through a controller.

This coal loader may be used in beds of any thickness greater than 36-in. With 36-in. headroom, the clearance between the conveyor and the roof is 11 in. The machine has a capacity of 2½ tons per minute under favorable conditions. The pickup arms will dig standing coal that has been shattered to a reasonable degree by shooting, but not kicked out by the shot. One of these loaders has been in service for six months in the Bird mine of the Bird Coal Co., located in the central Pennsylvania field and working the C Prime bed, which is 4 ft. thick. During a trial run it is said to have loaded 77½ tons in 125 min. including all delays. In so doing a 9-ft. undercut on a 65-ft. room face, inclined with respect to the ribs, was loaded into 1¾ ton mine cars. These were spotted in a trip on a track which paralled the face.



Equipment by Which Movements of Machine Are Controlled

All the motions of the machine with respect to the ground are governed by three levers. By reversing the main motor all motions are reversed. Note that the electrical parts are totally inclosed.